

VPDES PERMIT FACT SHEET

This document gives the pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a **minor municipal** permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260-00 et seq.

The discharge results from the operation of a **0.035 MGD extended aeration wastewater treatment plant** serving a private country club with restaurants and laundry and a housing development. This permit action consists of revising the *E. coli* and total residual chlorine limitations and monitoring; removing ammonia limitations; adding oil and grease monitoring; and revising the special conditions. (SIC Code: 4952)

1. **Facility Name and Address:**

Blacksburg Country Club WWTP

1064 Clubhouse Road

Blacksburg, VA 24060

Location: 1064 Clubhouse Road, off State Road 723

2. **Permit No:** **VA0027481** Existing Permit Expiration Date: September 11, 2013

3. **Owner/ Facility Contacts:**

William H. Lester, Managing Partner, B&J Enterprises

Daina Trimble Reynolds II, Superintendent, C&S Enterprises, (540) 989-3653; gordietz@msn.com

4. **Application Complete Date:** June 7, 2013

Permit Drafted By: Becky L. France, Water Permit Writer

Date: June 18, 2013, Revised 7/23/13

DEQ Regional Office: Blue Ridge Regional Office

Reviewed By: Kip D. Foster, Water Permit Manager

Reviewer's Signature:  Date: 8/19/13

Public Comment Period Dates: From 7/22/13 To 8/20/13

5. **Receiving Stream Classification:**

Receiving Stream: Roanoke River, North Fork (River Mile: 17.57)

Watershed ID: VAW-L02R (Roanoke River/ Bradshaw Creek)

River Basin: Roanoke River

River Subbasin: Roanoke River

Section: 7

Class: IV

Special Standards: pH 6.5 - 9.5 S.U.

7-Day, 10-Year Low Flow: 1.8 MGD 7-Day, 10-Year High Flow: 3.6 MGD

1-Day, 10-Year Low Flow: 1.6 MGD 1-Day, 10-Year High Flow: 3.1 MGD

30-Day, 5-Year Low Flow: 2.8 MGD Harmonic Mean Flow: 7.7 MGD

Tidal: No 303(d) Listed: No*

Attachment A contains a copy of the flow frequency determination memorandum.

*(The receiving stream is in the Roanoke Watershed TMDL for bacteria and benthic related impairments and the Lower Roanoke River Watershed TMDL for PCB related impairment. Bacteria and total suspended solids wasteload allocation have been assigned to this discharge.)

6. **Operator License Requirements:** Class IV

7. **Reliability Class:** II

8. **Permit Characterization:**

(X) Private () Interim Limits in Other Document
 () Federal () Possible Interstate Effect
 () State
 () POTW
 (X) PVOTW

9. **Wastewater Treatment System:** A description of the wastewater treatment system is provided below. See **Attachment B** for the wastewater treatment schematic and **Attachment C** for a copy of the site inspection report. Treatment units associated with the discharge are listed in the table below.

Table I
DISCHARGE DESCRIPTION

Outfall Number	Discharge Source	Treatment (Unit by Unit)	Flow (Design) (MGD)
001	Blacksburg Country Club WWTP	serial aeration basins (6) splitter tank clarifiers (2) tablet chlorinator tablet dechlorinator sludge holding tank	0.035

A 10,000 gpd wastewater treatment plant was built around 1975 to serve the Blacksburg Country Club and pool and later upgraded to allow sewer connections to the community. A Virginia Department of Health letter provided approval on January 10, 1978 of Plan and Specifications for a 35,000 gpd facility. A permittee review of old correspondence indicates that the facility was upgraded sometime after September 1978 and before 1988. B&J Enterprises currently operates an extended aeration package plant system for the Ellet Valley section of Blacksburg. This system has a design capacity of 0.035 MGD and serves the country club with a restaurant and a private subdivision. The wastewater treatment works consists of six aeration basins with air diffusers, splitter tank, two clarifiers, aerated sludge holding tank, tablet chlorinator, and tablet dechlorinator. Wastewater flows in series through the six aeration basins and is then routed

through the splitter tank which divides the flow between two clarifiers. Then, the effluent is chlorinated and dechlorinated and discharged to the North Fork of the Roanoke River.

10. **Sewage Sludge Use or Disposal:** A VPDES Sewage Sludge Permit Application Form was submitted for this facility to address disposal of sewage sludge from the wastewater treatment facility. Sludge is aerobically digested and periodically transported to the Western Virginia Water Authority Water Pollution Control Plant.
11. **Discharge Location Description:** A USGS topographic map which indicates the discharge location, any significant dischargers, any water intakes, and other items of interest is included in **Attachment D**. The latitude and longitude of the discharge are N 37°12'51.01", E 80°21'36.00".

Name of Topo: Ironto Number: 081A
12. **Material Storage:** Containers of calcium hypochlorite and sodium sulfite tablets are stored in a shed.
13. **Ambient Water Quality Information:** Memoranda or other information which helped to develop permit conditions (special water quality studies, STORET data, and any other biological and/or chemical data, etc.) are listed below.

Flow Frequency

Critical stream flow determinations were performed using site-specific flow measurements taken below the discharge on the North Fork of the Roanoke River in 1968, 2004, and 2005. A regression analysis was performed using the site-specific flow measurements and data from a USGS continuous record gauge on the South Fork of the Roanoke River near Shawsville, Virginia (#02053800). The values for the measurement site were projected to the discharge point using proportional drainage areas. The design flow of 0.035 MGD from Blacksburg Country Club WWTP was subtracted from the resulting flows to calculate the flow upstream of outfall 001. Critical stream flow values are lower than the 2003 reissuance permit. A copy of the Flow Frequency Determination Memorandum may be found in **Attachment A**.

Receiving Stream Water Quality Data

Data for STORET Station 4ARNF002.97 were collected downstream of the outfall in the North Fork of the Roanoke River at the Route 603 bridge (**Attachment E**). The 90th percentile pH, temperature, and average hardness used in the antidegradation wasteload allocation spreadsheet were determined from these STORET station data.

Endangered Species Review

The Department of Conservation and Recreation's Division of Natural Heritage has designated a segment of stream downstream of the discharge location as a Stream Conservation Unit (SCU). This SCU (North Fork Roanoke River- Den Creek) has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resources of concern associated with this SCU include Roanoke logperch. The Roanoke logperch is classified as endangered by the Virginia Department of Game and Inland Fisheries (VDGIF) and

the US Fish and Wildlife Service (USFWS). The North Fork of the Roanoke River has been designated by DGIF as a "Threatened and Endangered Species Water". VDGIF has also found state Threatened orangefin madtom in the North Fork of the Roanoke River. The Roanoke logperch is listed as a federal endangered species and its presence has been documented in the designated river section. A copy of the Division of Natural Heritage report information and the VDGIF information on species of concern in the area of the discharge is included in

Attachment E.

Total Maximum Daily Load (TMDL) Studies

Blacksburg County Club WWTP discharges into the North Fork of the Roanoke River/ Bradshaw Creek Watershed (VAW-L02R). There are no impairments in this section of the North Fork of the Roanoke River. However, there are four downstream impairments in this Roanoke River watershed.

The Virginia Department of Health has issued a fish consumption advisory due to PCB contamination in fish tissue. The advisory covers approximately 37 miles of the Roanoke River from the confluence of the North and South Fork of the Roanoke River to Niagara Dam including the tributaries of Peters Creek and Tinker Creek.

The segment of the Roanoke River from the confluence of Mason Creek downstream to the confluence of Tinker Creek has also been listed on the 303(d) list for mercury contamination of fish tissue.

The EPA approved bacteria TMDL (8/2/06) impaired section of the Roanoke River (L04R-01-BAC) extends 29.51 miles from the Roanoke County Spring Hollow Reservoir water intake downstream to the mouth of Falling Creek in Smith Mountain Lake. The impairment use is recreation.

The EPA approved benthic TMDL (5/10/06) impaired section of the Roanoke River (L0R-01-BEN) extends 15.18 miles from the City of Salem downtown intake downstream to the backwaters of Niagara impoundment.

Total Maximum Daily Loads (TMDLs) for total suspended solids and *E. coli* have been developed for the Roanoke River watershed. Refer to **Attachment E** for excerpts from the EPA approved reports which characterize impairment in the Roanoke River watershed and include wasteload allocations for point sources including Blacksburg Country Club WWTP.

14. **Antidegradation Review and Comments:** Tier 1 _____ Tier 2 **X** Tier 3 _____

The State Water Control Board's Water Quality Standards includes an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are

exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with Tier determination. The North Fork of the Roanoke River is not listed as a public water supply in the segment where the discharge is located. The North Fork of the Roanoke River in this segment (VAW-L02R) is not listed on the 303(d) list for exceedances of the water quality criteria. There are no pollutant data that indicate that the water quality of the stream is not better than the water quality standards. Therefore, this segment of the North Fork of the Roanoke River is classified as a Tier 2 water, and no significant degradation of existing quality is allowed.

For purposes of aquatic life protection in Tier 2 waters, “significant degradation” means that no more than 25 percent of the difference between the acute and chronic aquatic criteria values and the existing quality (unused assimilative capacity) may be allocated. For purposes of human health protection, “significant degradation” means that no more than 10 percent of the difference between the human health criteria and the existing quality (unused assimilative capacity) may be allocated. The antidegradation baselines for aquatic life and human health are calculated for each pollutant as follows:

Antidegradation baseline (aquatic life) = 0.25 (WQS – existing quality) + existing quality

Antidegradation baseline (human health) = 0.10 (WQS – existing quality) + existing quality

Where:

“WQS” = Numeric criterion listed in 9 VAC 25-260-00 et seq. for the parameter analyzed

“Existing quality” = Concentration of the parameter being analyzed in the receiving stream

When applied, these “antidegradation baselines” become the new water quality criteria in Tier 2 waters, and effluent limits for future expansions or new facilities must be written to maintain the antidegradation baselines for each pollutant. Antidegradation baselines have been calculated as described above and included in **Attachment F**.

A 10,000 gpd wastewater treatment plant was built around 1975 to serve the Blacksburg Country Club and pool and later upgraded to allow sewer connections to the community. A Virginia Department of Health letter provided approval on January 10, 1978 of Plan and Specifications for a 35,000 gpd facility. A permittee review of old correspondence indicates that the facility was upgraded sometime after September 1978 and before 1988. The antidegradation policy requirements set forth in the Clean Water Act requirements of November 28, 1975 apply.

So, for dissolved oxygen and BOD₅, antidegradation has been applied. These limits prevent a significant lowering of DO more than 0.20 mg/L from the existing level (90 percent DO saturation value) in the receiving stream. Ammonia and chlorine are grandfathered from antidegradation requirements because the state of Virginia did not develop water quality criteria for toxic pollutants until 1992. If the design capacity for the facility is increased in the future, the grandfathered status for toxic pollutants will no longer be applicable and limits for toxic pollutants will be written to meet antidegradation requirements. The application for this 0.60

MGD facility does not indicate an expansion or increase in the discharge of pollutants. So, the permit limits for this reissuance are in compliance with antidegradation requirements set forth in 9 VAC 25-260-30.

15. **Site Inspection:** Date: 3/28/13 Performed by: Becky L. France
Attachment C contains a copy of the site inspection memorandum. The last DEQ technical and laboratory inspection was conducted by Ryan Hendrix on March 31, 2011.
16. **Effluent Screening and Limitation Development:** DEQ Guidance Memo 00-2011 was used in developing all water quality based limits pursuant to water quality standards (9 VAC 25-260-5 et seq.). Refer to **Attachment F** for the wasteload allocation spreadsheet and effluent limit calculations. See **Table II** on page 18 for a summary of limits and monitoring requirements and **Table III** on page 19 for a summary of changes to the limits and monitoring requirements.

A. **Mixing Zone**

The MIXER program was run to determine the percentage of the receiving stream flow that could be used in the wasteload allocation calculations. The program output indicated that 100 percent of the 7Q10 and 100 percent of the 1Q10 may be used for calculating acute and chronic wasteload allocations (WLAs). A copy of the printout from the MIXER run is enclosed in **Attachment F**.

B. **Effluent Limitations for Conventional Pollutants**

The Upper Roanoke River Water Quality Management Plan (WQMP) requires dischargers in this segment to meet the State Water Control Board's Policy for Nutrient Enriched Waters (9 VAC 25-40-00 et seq.). This protective strategy is intended to protect Smith Mountain Lake from nutrient enrichment via point source discharges. The strategy states that all dischargers into this segment "...shall maintain the effluent phosphorus concentration prescribed by the nutrient enrichment policy." Therefore, although the stream classification for the North Fork of the Roanoke River does not carry the Nutrient Enriched Waters (NEW) designation in the September 11, 2007 Water Quality Standards, the nutrient enriched policy regarding phosphorus applies.

This facility has a design capacity below 0.05 MGD, and thus phosphorus limitations prescribed in the Nutrient Policy are not applicable. However, this policy indicates that a phosphorus monitoring requirement may be added to the VPDES permit where there is a potential for discharging monthly average phosphorus concentrations greater than or equal to 2 mg/L. The previous permit required effluent total phosphorus data which the permittee collected from August 2003 to May 2005. A summary of the phosphorus data is included in **Attachment F**. No additional phosphorus monitoring will be required with this reissuance.

Flow – The permitted design flow of 0.035 MGD for this facility is taken from the previous permit and the application for the reissuance. The permittee is under a consent

order to address inflow and infiltration problems. In accordance with the current VPDES Permit Manual, flow is to be estimated and reported each day.

E. coli – The permittee has been under a consent order to address exceedances of the *E. coli* monthly average limit. From December 2011 through January 2012 there have been no further exceedances of the *E. coli* limit (**Attachment F**). The monthly average limit of 126 cfu/100 mL has been continued from the previous permit. The Water Quality Standards, 9 VAC 25-260-170, have been revised to indicate that the geometric mean "shall be calculated using all data collected during any calendar month with a minimum of four weekly samples. If there are insufficient data to calculate a monthly geometric mean..., no more than 10% of the total samples in the assessment period shall exceed 235 *E. coli* cfu/100 mL. " If fewer than four weekly samples are collected during a month, a single sample maximum limit of 235 cfu/100 mL applies. Grab samples shall be collected once per week between 10 AM and 4 PM. The permit also includes a special condition (Part I.C) describing these reporting requirements.

The *Bacteria TMDLs for Wilson Creek, Ore Branch, and Roanoke River Watersheds, Virginia* TMDL report was approved by the EPA on August 2, 2006 and the State Water Control Board on June 27, 2007. The impaired segment of the Roanoke River begins at the Roanoke County Spring Hollow Reservoir and ends at the mouth of Falling Creek in Smith Mountain Lake. This TMDL report assigns a wasteload allocation of $6.10E + 10$ cfu/year to this discharge. This wasteload allocation was based upon an *E. coli* limit of 126 cfu/100 mL and a design flow of 0.035 MGD. See **Attachment E** for an excerpt from the TMDL report.

pH – Between October 2008 and January 2013, there were no exceedances of the TSS limitations (**Attachment F**). The pH limits of 6.5 S.U. (minimum) and 9.0 S.U. (maximum) have been continued from the previous permit. The federal technology-based guidelines for secondary treatment, 40 CFR Part 133, allow for a minimum of 6.0 S.U. However, a minimum limit of 6.5 S.U. has been included in the permit since the water quality criteria in 9 VAC 25-260-50 for Class IV receiving waters are 6.5 S.U. (minimum) and 9.5 S.U. (maximum). The maximum pH limit of 9.0 S.U. has been included in the permit in accordance with the federal technology-based guidelines. Grab samples shall be collected once per day.

Total Suspended Solids (TSS) – TSS limits are technology-based requirements for municipal dischargers with secondary treatment required in accordance with 40 CFR Part 133. Between October 2008 and January 2013, there were seven exceedances of the TSS limitations (**Attachment F**). TSS is a technology-based requirement for municipal dischargers with secondary treatment required in accordance with 40 CFR Part 133. These effluent limits of 30 mg/L (3900 g/d) monthly average and 45 mg/L (5900 g/d) weekly average have been continued from the previous permit. Grab samples shall continue to be collected.

A benthic TMDL for the Roanoke River watershed allocates an annual total suspended solids wasteload allocation for this discharge. Monthly monitoring of the total TSS loading is also required so that the calendar-year-to-date loading may be calculated. The permit includes a TSS annual loading limit of 1424 kg (1.57 tons) which is the total maximum daily load (TMDL) allocation from the report *Benthic TMDL Development for the Roanoke River, Virginia* (**Attachment E**).

Biochemical Oxygen Demand (BOD₅) – Between October 2008 and January 2013, there were three exceedances of the BOD₅ limitations (**Attachment F**). Since there has been a decrease in the flow frequencies at the outfall, the new data have been entered into the Regional Water Quality Model for Free Flowing Streams (Version 4.0) to reassess the BOD₅ limits. A copy of the model output results is found in **Attachment G**.

An initial DO concentration of 0 mg/L, a TKN value of 20 mg/L, and 30 mg/L for BOD₅ were used in the model input. The background dissolved oxygen was 7.608 mg/L. The model predicted a dissolved oxygen (DO) sag at the initial discharge point to 7.455 mg/L. This sag is 0.150 mg/L below the existing background condition of 7.608 mg/L. So, these effluent concentrations do not violate the antidegradation policy. Therefore, current treatment limits for BOD₅ are protective of the water quality, and a limit for DO is not needed to meet the DO water quality criterion in 9 VAC 25-260-50 for Class IV receiving waters.

The effluent limits of 30 mg/L (3900 g/d) monthly average and 45 mg/L (5900 g/d) weekly average have been continued from the previous permit. Grab samples shall continue to be collected once per month.

Oil and Grease – Oil and grease is a conventional pollutant as defined by 40 CFR § 401.16. There are two restaurants located at the Blacksburg Country Club in close proximity to the wastewater treatment facility. DEQ site inspections revealed significant sludge layers in the interior clarifier wells and the possibility that oil and grease may be affecting effluent water quality could not be discredited. No oil and grease data are available for this facility. Restaurant discharges to the treatment works are expected to vary considerably due to seasonal usage and events. Monthly monitoring shall be required 1/month for 12 months. Following the collection of 12 monthly data points, monitoring shall be reduced to quarterly. The permittee is advised to provide educational materials and/or inspections if feasible for source reduction. In the event there are high oil and grease data (15mg/L), the permit may be reopened and modified to add an oil and grease limit. Any documented source reduction and/or treatment measures will be taken into account when evaluating data to determine if an oil and grease limit will be needed.

C. **Effluent Limitations for Toxic Pollutants**

Ammonia as Nitrogen – For this reissuance there have been changes in the 90th percentile pH, 90th percentile temperature, and stream flow. These changes resulted in a revision to the acute and chronic WLAs. The revised WLAs were entered into the

STATS program to determine if there is a reasonable potential to exceed the wasteload allocations. The program output indicated that an ammonia limit is not needed. Backsliding on the ammonia limits is allowed because this new temperature, pH, and flow information used to calculate the wasteload allocations was not available for the previous reissuance. This new information exemption to backsliding is allowed in accordance with 9 VAC 25-31-220 L2.a of the VPDES Permit Regulation. No other limits are less stringent than the previous permit. A copy of the WLAs and STATS program output has been included in **Attachment F**.

Temperature – Daily temperature monitoring is being required in the reissued permit. These data will be reported as a maximum daily average for the purposes of calculating the 90th percentile effluent temperature and calibrating the Regional Water Quality Model. The 90th percentile temperature is used in the WLA spreadsheet calculations. The temperature water quality criteria as per 9 VAC 25-260-50 for this Class IV receiving stream is 31 °C.

Total Residual Chlorine (TRC) – The TRC limits in the previous permit were reassessed with the WLAs that were determined from the decreased stream flow. Based on the acute and chronic WLAs and the Agency's STATS program, permit limits of 0.042 mg/L monthly average and 0.051 mg/L weekly average are needed in the permit. These more stringent limits replace the previous permit limits. Since the facility dechlorinates the effluent, a compliance schedule is not needed to meet these limitations. Effluent total residual chlorine will continue to be monitoring 1/day via grab samples.

17. **Basis for Sludge Use and Disposal Requirements:** Since the facility proposes to pump and haul sludge to a POTW, there are no sludge limits or monitoring requirements.
18. **Antibacksliding Statement:** The monthly average and weekly average limitations for ammonia have been removed. Backsliding on these limits is allowed because new temperature, pH, and flow information was used to calculate the wasteload allocations and this information was not available for the previous reissuance. This new information exemption to backsliding is allowed in accordance with 9 VAC 25-31-220 L2.a of the VPDES Permit Regulation. No other limits are less stringent than the previous permit.
19. **Compliance Schedules:** A compliance schedule has been included to allow the permittee time to comply with the ammonia as nitrogen limitations.
20. **Special Conditions:** A brief rationale for each permit special condition contained in the permit is given below.
 - A. **Additional Total Residual Chlorine (TRC) Limitations and Monitoring Requirements (Part I.B)**

Rationale: This condition requires that the permittee monitor the TRC concentration after chlorine contact. In accordance with 40 CFR 122.41 (e), the permittee is required, at all

times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. These requirements ensure proper operation of chlorination equipment to maintain adequate disinfection.

B. *E. coli* Reporting Requirements (Part I.C)

Rationale: The Water Quality Standards, 9 VAC 25-260-170 establishes bacteria water quality standards. The standard set bacteria monitoring requirements. This special condition is needed to describe requirements for when there is insufficient data (four samples) to calculate a monthly geometric mean.

C. Compliance Reporting (Part I.D.1)

Rationale: In accordance with VPDES Permit Regulation, 9 VAC 25-31-190 J4 and 220 I, DEQ is authorized to establish monitoring methods and procedures to compile and analyze data on water quality, as per 40 CFR Part 130, Water Quality Planning and Management, Subpart 130.4. This condition is necessary when toxic pollutants are monitored by the permittee and a maximum level of quantification and/or specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. This condition also establishes protocols for calculation of reported values.

D. 95% Capacity Reopener (Part I.D.2)

Rationale: This condition requires that the permittee address problems resulting from high influent flows, in a timely fashion, to avoid non-compliance and water quality problems from plant overloading. This requirement is contained in 9 VAC 25-31-200 B2 of the VPDES Permit Regulations.

E. Indirect Dischargers (Part I.D.3)

Rationale: This condition is required by VPDES Permit Regulation, 9 VAC 25-31-200 B1 for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

F. CTC, CTO Requirement (Part I.D.4)

Rationale: This condition is required by Code of Virginia § 62.1-44.19; Sewage Collection and Treatment Regulations, 9 VAC 25-790.

G. Operations and Maintenance Manual Requirement (Part I.D.5)

Rationale: Submittal of the manual is required by the VPDES Permit Regulation, 9 VAC 25-31-190 E to provide an opportunity for review of current and proposed operations of the facility.

H. Licensed Operator Requirement (Part I.D.6)

Rationale: The VPDES Permit Regulation, 9 VAC 25-31-200 D and the Code of Virginia §54.1-2399 et seq., Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.), require licensure of operators. A Class IV operator is required for this facility.

I. Reliability Class (Part I.D.7)

Rationale: Reliability class designations are required by Sewage Collection and Treatment Regulations, 9 VAC 25-790 for all municipal facilities. A Reliability Class II has been assigned to this facility.

J. Financial Assurance and Disclosure to Purchasers (Part I.D.8)

A letter was submitted with the reissuance application describing a proposed sale of the wastewater treatment plant. The financial assurance closure plan is conditionally approved for a maximum interim period of one year from the effective date of the permit. In the event that the change of ownership does not occur, the permittee is required to submit another financial assurance closure plan and cost estimate for approval prior to the expiration date of the current financial assurance plan. Upon approval of a change of ownership, the new permittee has six months to submit an approvable financial assurance closure plan and cost estimate. During the interim period prior to a new owner's approved financial assurance closure plan, the previous owner is responsible for maintaining the financial assurance closure requirements. See **Attachment H** for the most current financial assurance information for this facility.

Rationale: Submittal of a financial assurance closure plan is required by Code of Virginia §62.1-44.18:3 and the Board's Financial Assurance Regulation, 9 VAC 25-650-10 et seq.

K. Sludge Reopener (Part I.D.9)

Rationale: This condition is required by VPDES Permit Regulation, 9 VAC 25-31-220 C for all permits issued to treatment works treating domestic sewage.

L. Sludge Use and Disposal (Part I.D.10)

Rationale: VPDES Permit Regulation, 9 VAC 25-31-100 P; 220 B2; and 420 and 720, and 40 CFR Part 503 require all treatment works treating domestic sewage to submit information on sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements may be derived from the VPA Permit Regulation, 9 VAC 5-32-10 et seq. This special condition, in accordance with Guidance Memorandum No. 97-004, clarifies that the Sludge Management Plan approved with the reissuance of this permit is an enforceable condition of the permit.

M. Total Maximum Daily Load (TMDL) Reopener (Part I.D.11)

Rationale: Section 303(d) of the Clean Water Act requires that Total Maximum Daily Loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under Section 303 of the Act.

N. Total Suspended Solids Load Calculations (Part I.D.12)

Rationale: This special condition provides instructions for calculation of the annual total suspended solids load which will be compared to the Total Maximum Daily Load approved by the EPA.

O. Permit Application Requirement (Part I.D.13)

Rationale: VPDES Permit Regulation, 9 VAC 25-31-100.D and 40 CFR 122.21(d)(1) require submission of a new application at least 180 days prior to expiration of the existing permit. In addition, the VPDES Permit Regulation, 9 VAC 25-31-100 E.1 and 40 CFR 122.21 (e)(1) note that a permit shall not be issued before receiving a complete application.

P. Conditions Applicable to All VPDES Permits (Part II)

Rationale: VPDES Permit Regulation, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

21. Changes to the Permit:

A. The following special condition has been deleted from the permit:

The Schedule of Compliance Special Condition (Part I.C) has been deleted because the permittee has achieved compliance with the ammonia limit.

B. Special conditions that have been modified from the previous permit are listed below: (The referenced permit sections are for the new permit.)

1. The Total Residual Chlorine (TRC) Limitations and Monitoring Requirements Special Condition (Part I.B) has been revised to include update TRC limitations.
2. A Compliance Reporting Special Condition (Part I.D.1) has been revised to include information about significant figures.

3. The Operations and Maintenance Manual Special Condition (Part I.D.5) has been revised in accordance with the VPDES Permit Manual.
4. The Total Suspended Solids Load Calculations Special Condition (Part I.D.12) have been revised for calculation of kilograms rather than tons per year.

C. The following new special conditions added to the permit are listed below:

1. An *E. coli* Reporting Requirements Special Condition (Part I.C) has been added to comply with the Water Quality Standards 9 VAC 25-260-170 for when there are insufficient data (four samples) to calculate a monthly geometric mean.
2. A Permit Application Requirement Special Condition (Part I.D.13) has been added to provide the specific due date for the required submittal of the application.

D. Permit Limits and Monitoring Requirements: See Table III on page 18 for details on changes to the effluent limits and monitoring requirements.

22. **Variances/Alternate Limits or Conditions:** No variances or alternate limits or conditions are included in this permit.
23. **Regulation of Treatment Works Users (9 VAC 235-31-280 B9):** There are no industrial users contributing to the treatment works.
24. **Public Notice Information required by 9 VAC 25-31-290 D:**

All pertinent information is on file and may be inspected, and copied by contacting Becky L. France at:

Virginia DEQ
Blue Ridge Regional Office
3019 Peters Creek Road
Roanoke, VA 24019
540-562-6700
becky.france@deq.virginia.gov

Persons may comment in writing or by e-mail to the DEQ on the proposed permit action and may request a public hearing during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for the comments. Only those comments received within this period will be considered.

The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests

for public hearings shall state (1) the reason why a hearing is requested; (2) a brief informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and (3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may review the draft permit and application at the Blue Ridge Regional Office in Roanoke by appointment. A copy of the public notice is found in **Attachment I**.

25. **303(d) Listed Segments (TMDL):** This facility discharges directly to the North Fork of the Roanoke River. The stream segment receiving the effluent is not listed on the current 303(d) list. However, there are four downstream impairments in this Roanoke River watershed. See **Attachment E** for excerpts from the TMDL reports.

PCBs

The Virginia Department of Health has issued a fish consumption advisory due to PCB contamination in fish tissue. The advisory covers approximately 37 miles of the Roanoke River from the confluence of the North and South Fork of the Roanoke River to Niagara Dam including the tributaries of Peters Creek and Tinker Creek.

The *Roanoke River PCB TMDL Development (Virginia)* report was approved by EPA on April 9, 2010 and the State Water Control Board on December 9, 2010. This report lists Blacksburg Country Club WWTP as a discharger of total suspended solids but does not include a PCB wasteload allocation for this facility. Guidance Memo 09-2001 indicates that SIC Codes 49XX may be subject to PCB monitoring. However, discussions with DEQ TMDL regional staff indicate that PCB monitoring for TMDL development is not required for potable water facilities (4941). However, the permittee submitted a waiver request from PCB monitoring per Guidance Memo 09-2001. The letter certified that PCBs were believed to be never present on the site. The request is granted and PCB monitoring for TMDL development is not included in this permit. Refer to **Attachment E** for a copy of the waiver request letter.

Mercury

The segment of the Roanoke River from the confluence of Mason Creek downstream to the confluence of Tinker Creek has also been listed on the 303(d) list due to mercury contamination of fish tissue. A TMDL study has been scheduled for completion in 2022.

Bacteria

The bacteria impaired section of the Roanoke River (L04R-01-BAC) extends 29.51 miles from the Roanoke County Spring Hollow Reservoir water intake downstream to the mouth of Falling Creek in Smith Mountain Lake (350 acres). The impairment use is recreation. The *Bacteria TMDLs for Wilson Creek, Ore Branch, and Roanoke River Watersheds, Virginia* TMDL report was approved by the EPA on August 2, 2006 and the State Water Control Board on June 27, 2007. The TMDL allocation of 6.10E +10 is calculated from the permit's effluent limit of 126 cfu/100 mL and a design flow of 0.035 MGD.

Benthic – Total Suspended Solids

The benthic impaired section of the Roanoke River L0R-01-BEN) extends 15.18 miles from the City of Salem downtown intake downstream to the backwaters of the Niagara impoundment.

EPA approved the *Benthic TMDL Development for the Roanoke River, Virginia* report on May 10, 2006 for this segment. It contains a WLA for this discharge of 1.57 tons/year (1424 kg/year), and this limit has been added to the permit to ensure compliance with this wasteload allocation.

26. **Additional Comments:**

- A. **Reduced Effluent Monitoring:** In accordance with Guidance Memorandum 98-2005, all permit applications received after May 4, 1998, are considered for reduction in effluent monitoring frequency. Only facilities having exemplary operations that consistently meet permit requirements may qualify for reduced monitoring. To qualify for consideration of reduced monitoring requirements, the facility should not have been issued any Warning Letters, Notices of Unsatisfactory Laboratory Compliance, Letter of Noncompliance (LON) or Notices of Violation (NOV), or be under any Consent Orders, Consent Decrees, Executive Compliance Agreements, or related enforcement documents during the past three years.

The facility is currently under a consent order. The facility received the following Warning Letters and Notice of Violation (NOV) reports within the past two years:

NOV No. W2012-04-W-1003	exceedance of <i>E. coli</i> limit Feb. 2012
NOV No. W2012-01-W-0001	failure to submit 3 rd year progress report
NOV No. W2012-02-W-0001	exceedance of <i>E. coli</i> limit Nov. 2011
NOV No. W2011-12-W-1002	failure to submit 3 rd year progress report
	failure to submit 3 rd quarter progress report for special order by consent
NOV No. W2011-11-W-1002	exceedance of <i>E. coli</i> limit Sept/. 2011
	failure to submit 3 rd year progress report
	unauthorized discharge
NOV No. W2011-06-W-0001	exceedances of BOD ₅ and TSS Feb. 2011
	exceedances of TSS Jan. 2011
	exceedances of TSS Dec. 2011
	failure to submit corrective action plan and schedule for <i>E. coli</i>
NOV No. W2011-05-W-0001	exceedances of BOD ₅
	exceedances of TSS Feb. 2011, Jan. 2011, Dec. 2010
	failure to submit corrective action plan and schedule for <i>E. coli</i>
NOV No. W2011-04-W-1007	exceedances of BOD ₅ and TSS Feb. 2011
NOV No. W2011-03-W-1004	exceedances of TSS Jan. 2011
NOV No. W2011-02-W-1003	exceedances of TSS Dec. 2010
NOV No. W2011-01-W-1004	failure to submit 3 rd annual financial

NOV No. W2010-W-0001	assurance review
NOV No. W2010-08-W-0002	exceedance of <i>E. coli</i> limit July 2010
	exceedance of <i>E. coli</i> limit June 2010
	failure to submit 1 st year progress report
	failure to submit 2 nd annual financial
	assurance review
NOV No. W2010-07-W-0002	exceedance of <i>E. coli</i> limit
NOV No. W2010-06-W-0003	exceedance <i>E. coli</i> limit April 2010
	failure to submit 1 st year progress report
	failure to submit 2 nd annual financial
	assurance review
NOV No. W2010-04-W-0002	failure to submit 1 st year progress report
NOV No. W2010-03-W-0003	exceedance of <i>E. coli</i> limit Jan. 2010
NOV No. W2010-02-W-0003	unauthorized discharge Dec. 2009
NOV No. W2010-01-W-0002	exceedance of <i>E. coli</i> Nov. 2009, Aug. 2009,
	July 2009, June 2009
	exceedance of <i>E. coli</i> limit Sept. 2009
	exceedances of TSS limit Sept. 2009
	failure to report total chlorine Sept. 2001

The facility does not meet the criteria discussed above and therefore is not eligible for reduced monitoring.

- B. **Toxic Pollutant (PCB) Monitoring:** No effluent PCB data is on file. The treatment facility has a design capacity under 40,000 gpd and does not treat process wastewater, water quality standards monitoring has not been required
- C. **Previous Board Action:** A Special Order by Consent was issued to B&J Enterprises L.C., and this order became effective on September 28, 2007. A copy of this order is in **Attachment J**. This consent order requires the permittee to address inflow and infiltration problems.
- D. **Staff Comments:** The discharge is not controversial. The discharge is in conformance with the existing planning document for the area. A letter was submitted with the reissuance application explaining a proposal to purchase wastewater treatment plant. At the time of the initial drafting of this Fact Sheet, the transfer of ownership was being evaluated by the State Corporation Commission, and any future plans for purchase of the facility are subject to change.

Revisions were made to the Fact Sheet on July 23, 2013 to correct information about the boundaries of the impaired stream sections and TMDL development. These revisions did not have any effect on the limits or conditions in the permit.

E. **Public Comments:** No comments were received during the public comment period.

F. **Tables**

Table I	Discharge Description (Page 2)
Table II	Basis for Monitoring Requirements (Pages 18)
Table III	Permit Processing Change Sheet (Page 19)

G. **Attachments**

- A. Flow Frequency Memorandum
- B. Wastewater Schematic
- C. Site Inspection Report
- D. USGS Topographic Map
- E. Ambient Water Quality Information
 - STORET Data (Station 4ARNF002.97)
 - 2006 Impaired Waters Assessment (Excerpt)
 - Policy for Nutrient Enriched Waters (9 VAC 25-40-00 et seq.)
 - Benthic TMDL Development for the Roanoke River, Virginia (3/06) (Excerpt)
 - Bacteria TMDLs for Wilson Creek, Ore Branch and Roanoke River Watersheds, Virginia (2/06) (Excerpt)
 - Endangered Species Information
- F. Wasteload and Limit Calculations
 - Mixing Zone Calculations (MIXER)
 - Effluent Data
 - Wasteload Allocation Spreadsheet
 - STATS Program Results (ammonia, TRC)
- G. Regional Water Quality Model Output (Version 4.0)
- H. Financial Assurance Information
- I. Public Notice
- J. Consent Order
- K. EPA Checksheet

Table II-1
BASIS FOR LIMITATIONS – MUNICIPAL

() Interim Limitations
(x) Final Limitations

OUTFALL: 001
DESIGN CAPACITY: 0.035 MGD

Effective Dates - From: Effective Date
To: Expiration Date

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITS				MONITORING REQUIREMENTS	
		Monthly Average	Weekly Average	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NA	NA	NL	1/Day	Estimate
pH (Standard Units)	1,2	NA	NA	6.5	9.0	1/Day	Grab
BOD ₅	1	30 mg/L 390 g/d	45 mg/L 590 g/d	NA	NA	1/Month	Grab
Total Suspended Solids	1	30 mg/L 390 g/d	45 mg/L 590 g/d	NA	NA	1/Month	Grab
Total Suspended Solids (total mass loading)	4	NA	NA	NA	NL kg	1/Month	Calculated
Total Suspended Solids (calendar-year-to-date)	4	NA	NA	NA	NL kg	1/Month	Calculated
Total Suspended Solids (tons/calendar year)	4	NA	NA	NA	1424 kg/year	1/Year	Calculated
Total Residual Chlorine	2	0.046 mg/L	0.056 mg/L	NA	NA	1/Day	Grab
Temperature	2	NA	NA	NA	NL °C	1/Day	IS
<i>E. coli</i>	2	126 cfu/100 mL	NA	NA	NA	1/Week	Grab (between 10 AM and 4 PM)
Oil and Grease	3	NA	NA	NA	NL mg/L	1/Month*	Grab

NA = Not Applicable

NL=No Limitations, monitoring only

IS= Immersion Stabilization

*1/Month for 12 months, then 1/quarter

The basis for the limitations codes are:

1. Federal Technology-Based Secondary Treatment Regulation (40 CFR Part 133)
2. Best Professional Judgment
3. Water Quality Criteria
4. Total Maximum Daily Load -- Upper Roanoke River Report

Table III
PERMIT PROCESSING CHANGE SHEET

LIMITS AND MONITORING SCHEDULE:

Outfall No.	Parameter Changed	Monitoring Requirement Changed		Effluent Limits Changed		Reason for Change	Date
		From	To	From	To		
001	<i>E. coli</i> (applicable when ultraviolet used as disinfection)	1/Week	3 Days/Week	126 N/100 ml (geometric mean)	126 cfu/100 mL (geometric mean or 235 cfu/100 mL maximum)	Water quality standards revised to require geometric mean to be calculated from 4 samples. Alternative maximum limit applies when less than 4 samples collected during the month. Monitoring frequency increased in accordance with VPDES Permit Manual. In accordance with the VPDES Permit Manual, the frequency has increased.	6/17/13
001	total residual chlorine (TRC)			0.046 mg/L monthly average; 0.056 weekly average	0.042 mg/L monthly average; 0.051 weekly average	New temperature, pH, and flow data used to calculate WLAs for TRC. STATS program output indicated that more stringent limitations needed.	6/17/13
001	Oil and Grease	NA	1/Month for 12 months, then 1/Quarter	NA	NL mg/L	Oil and grease monitoring added to determine if a limit is needed.	6/17/13
001	Ammonia as N	1/month	NA	15 mg/L monthly average; 15 mg/L weekly average	NA	New temperature, pH, and flow data used to calculate WLAs for ammonia. STATS program output indicated that limitations not needed. Backsliding allowed due to new information not available during previous permit term.	6/17/13

Attachment A

Flow Frequency Memorandum

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION 3019 Peters Creek Road, Roanoke, Virginia 24019

SUBJECT: Flow Frequency Determination
Blacksburg Country Club WWTP – (VA0027481)

TO: Permit File

FROM: Becky L. France, Water Permit Writer *BLF*

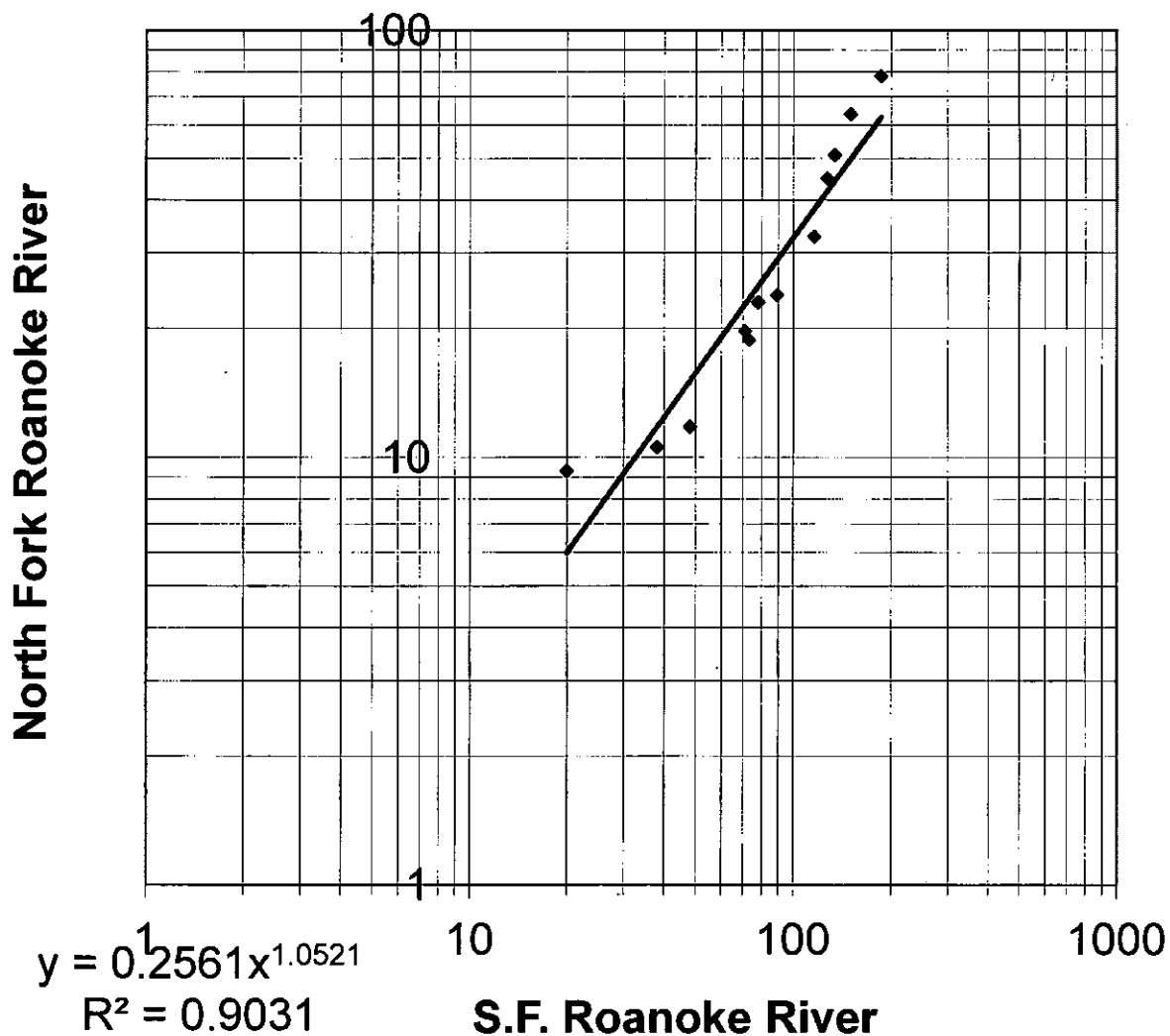
DATE: March 5, 2013

The Blacksburg Country Club WWTP discharges to the North Fork of the Roanoke River near Lusters Gate, Virginia. Stream flow frequencies are required at this site to develop effluent limitations for the VPDES permit.

DEQ conducted several flow measurements on the North Fork of the Roanoke River in 1968, 2004, and 2005. The measurements were made at Route 603 in Ellet, Virginia (#02054120) downstream of the discharge point. The measurements correlated very well with the same day daily mean values from the downstream continuous record gauge on the South Fork of the Roanoke River near Shawsville, Virginia #02053800. The measurements and daily mean values were plotted on a logarithmic graph and a best fit line was drawn through the data points. The values for the measurement site were projected to the discharge point using proportional drainage areas. The design flow of 0.035 MGD from Blacksburg Country Club WWTP was subtracted from the resulting flows to calculate the flow upstream of outfall 001.

This analysis assumes there are no other significant discharges, withdrawals, or springs influencing the flow in the North Fork of the Roanoke River upstream of the discharge point. The high flows are January through May. Flow frequencies for the reference gauge, the measurement site, and the discharge point are listed on the attached tables.

North Fork Roanoke River at Route 603 in Ellet, VA (#02054120)
vs S.F. Roanoke River near Shawsville, VA (#02053800)



Flow Data (cfs)

Date	SF Roanoke	NF Roanoke
10/15/1968	20	9.33
7/14/2004	71	19.7
8/19/2004	38	10.6
9/23/2004	73	18.8
10/8/2004	116	32.8
11/29/2004	186	78.3
2/16/2005	134	51
4/14/2005	150	63.7
4/22/2005	127	45
5/25/2005	89	23.9
6/9/2005	78	23
6/27/2005	48	11.8

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.969382
R Square	0.939702
Adjusted R Squa	0.933672
Standard Error	5.774494
Observations	12

Flow Frequencies (cfs)

SF Roanoke		NF Roanoke
11.9	1Q10	3.467
13.1	7Q10	3.836
20	30Q5	5.987
16.9	30Q10	5.015
22	HF 1Q10	6.619
26	HF 7Q10	7.890
53	HM	16.692
37	HF30Q10	11.437
109 mi ²	DA	46.36 mi ²
	Jan-May	

North Fork Roanoke River at Route 603 in Ellet, VA (#02054195)
vs S.F. Roanoke River near Shawsville, VA (#02053800)

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.969382
R Square	0.939702
Adjusted R Squa	0.933672
Standard Error	5.774494
Observations	12

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	5196.554	5196.554	155.8431	2.01E-07
Residual	10	333.4478	33.34478		
Total	11	5530.002			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	-9.175501	3.719074	-2.467147	0.033267	-17.46212	-0.888886	-17.46212	-0.8888861
X Variable 1	0.44074	0.035305	12.48371	2.01E-07	0.362075	0.519405	0.362075	0.5194047

RESIDUAL OUTPUT

<i>Observation</i>	<i>Predicted Y</i>	<i>Residuals</i>	<i>Standard Residuals</i>
1	-0.360704	9.690704	1.760101
2	22.11703	-2.417027	-0.438999
3	7.572613	3.027387	0.549858
4	22.99851	-4.198507	-0.762566
5	41.95032	-9.15032	-1.661953
6	72.80211	5.497892	0.99857
7	49.88364	1.116363	0.202763
8	56.93547	6.764526	1.228626
9	46.79846	-1.798458	-0.32665
10	30.05034	-6.150344	-1.117074
11	25.20221	-2.202206	-0.399982
12	11.98001	-0.180011	-0.032695

Reference Gauge (data from 1961 to 2003)					
S.F. Roanoke River near Shawsville, VA (#02053800)					
Drainage Area [mi ²] =		109	mi ²		
	ft ³ /s	MGD		ft ³ /s	MGD
1Q10 =	11.9	7.7	High Flow 1Q10 =	22	14
7Q10 =	13.1	8.5	High Flow 7Q10 =	26	17
30Q5 =	20	13	High Flow 30Q10=	37	24
30Q10=	16.9	11	HM =	53	34

Flow frequencies from Regression Analysis					
N.F. Roanoke River at Route 603 in Ellet, VA (#02054195)					
Drainage Area [mi ²] =		64.4	mi ²		
	ft ³ /s	MGD		ft ³ /s	MGD
1Q10 =	3.467	2.24	High Flow 1Q10 =	6.619	4.28
7Q10 =	3.836	2.48	High Flow 7Q10 =	7.890	5.10
30Q5 =	5.987	3.87	High Flow 30Q10	11.437	7.39
30Q10=	5.015	3.24	HM =	16.692	10.79

N.F. Roanoke River above Blacksburg Country Club WWTP discharge					
Drainage Area [mi ²] =		46.36	mi ²		
	ft ³ /s	MGD		ft ³ /s	MGD
1Q10 =	2.461032	1.6	High Flow 1Q10 =	4.729639	3.1
7Q10 =	2.72652	1.8	High Flow 7Q10 =	5.64516	3.6
30Q5 =	4.275035	2.8	High Flow 30Q10=	8.198266	5.3
30Q10=	3.575162	2.3	HM =	11.98149	7.7

Design Capacity Blacksburg Country Club WWTP 0.035 MGD

02053800 South Fork Roanoke River at Shawsville, Va. (Ironto Quad)
 Record 1960-

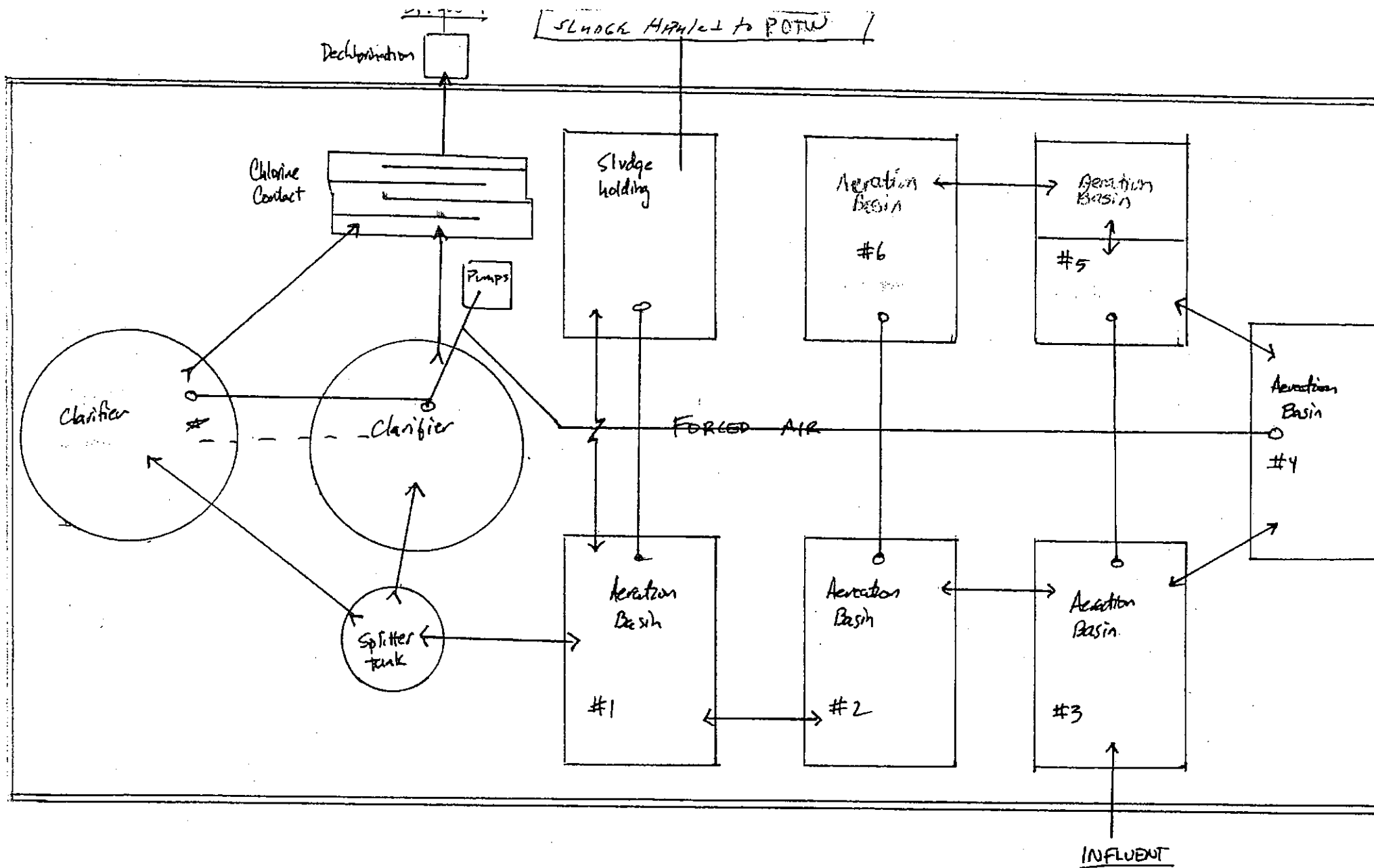
Record	DaArea	Hamean	HF30Q10	HF7Q10	HF1Q10	Z30Q5	Z30Q10	Z7Q10	Z1Q10	Z1Q30	HFMTHS	Statperiod	Yrstrn
R, 1960-	109	53	37	26	22	20	16.9	13.1	11.9	8.7	Jan-May	1961-2012	2012

Gauging Station #02054195 (STORET No. ARNF015.50)
 North Fork Roanoke River at Route 603, at Ellett, VA (Ironto Quad) (TMDL Site)
 Watershed ID No. VAW-L02R
 Lat 37 11'12", Long 80 21'09", NAD 83
 Drainage Area 64.4 mi2

DATE	Discharge (cfs)
10/15/68	9.33
7/14/04	19.7
8/19/04	10.6
9/23/04	18.8
10/8/04	32.8
11/29/04	78.3
2/16/05	51
4/14/05	63.7
4/22/05	45
5/25/05	23.9
6/9/05	23
6/27/05	11.8

Attachment B

Wastewater Schematic



* Valved to operate in series in 1998.

1997
OPERATIONS DIAGRAM
Blacksburg Country Club Sewage Treatment Plant.

Attachment C

Site Inspection Report

M E M O R A N D U M
DEPARTMENT OF ENVIRONMENTAL QUALITY
Blue Ridge Regional Office

3019 Peters Creek Road

Roanoke, VA 24019

SUBJECT: Site Inspection Report for Blacksburg Country Club WWTP
Reissuance of VPDES Permit No. VA0027481

TO: Permit File

FROM: Becky L. France, Water Permit Writer *BLF*

DATE: March 28, 2013

On March 28, 2013, a site inspection of the wastewater works for the Ellet Valley section of Blacksburg was conducted. Mr. Daina Reynolds II, operator, was present at the inspection. Blacksburg Country Club is located off US Road 723 in Montgomery County. Drinking water for the area is provided by wells. Blacksburg Country Club withdraws water upstream of the wastewater outfall. A small dam is located just above the withdrawal point. Since the last reissuance, a laundry and a conference center with a second restaurant have been added to the country club.

B & J Enterprises L.C. operates an extended aeration treatment plant for the Blacksburg Country Club which treats wastewater from the conference center, two country club dining facilities, country club laundry, and 159 residences in the area. Two pump stations (built in 2001) serve the residential area and two pump stations (built in 1970s) serve the country club. Each pump station has a grinder pump, audio alarm, and generator connection.

The wastewater treatment facility has a design capacity of 35,000 gpd. The extended aeration system consists of 6 aeration basins with air diffusers, splitter tank, 2 clarifiers with skimmers, sludge holding tank with aerator, tablet chlorinator with baffled chlorine contact chamber, and dechlorinator. A grease trap is designed to handle grease from the country club restaurant. Currently the wastewater enters two parallel aeration basin treatment trains. Each the wastewater flows through a series of three aeration basins to two parallel clarifiers.

During the site visit, some floating solids were observed in the aeration basins. The activated sludge was a good chocolate color. Wastewater from the last activated sludge basin in series flows through a splitter tank and then into two parallel clarifiers. Each clarifier has a hopper with an air lift pump for sludge return. Excess sludge from the clarifiers is pumped into the aerated sludge holding tank every other day. A thick layer of sludge was found in the interior of the clarifiers but no noticeable solids were being discharged from the clarifiers.

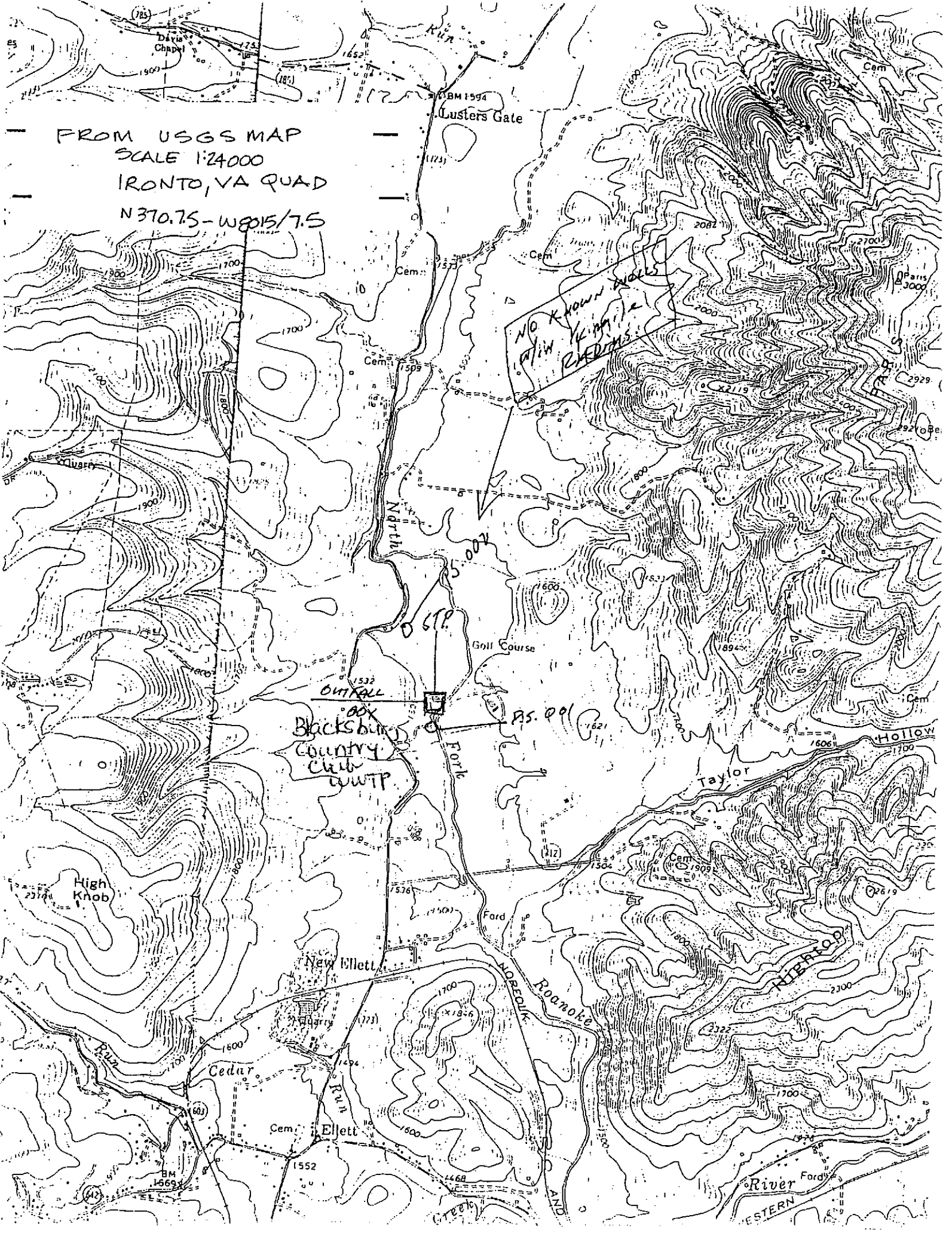
According to Mr. Reynolds, the sludge tank was pumped the previous week. Their sludge is transported by a contract waste hauler to the Western Virginia Water Authority Water Pollution Control Plant.

The wastewater from each clarifier flows to the disinfection system, which includes a tablet chlorinator, baffled chlorine contact chamber, and tablet dechlorinator. One tablet tube is currently used for chlorination. At the time of the site visit, there were some solids in the chlorine contact chamber. The effluent is discharged to the North Fork of the Roanoke River. Flow is measured by a totalizer flow meter.

At the time of site visit, there were some dried solids on the ground from a leak the operator said was coming from aeration basin leaks. Repairs of these basins are scheduled for this summer.

Attachment D

USGS Topographic Map



FROM USGS MAP
SCALE 1:24000
IRONTO, VA QUAD
N 370.75 - W 8015/7.5

Attachment E

Ambient Water Quality Information

- **STORET Data (Station 4ARNF002.97)**
- **Policy for Nutrient Enriched Waters
(9 VAC 25-40-00 et seq.)**
- **Benthic TMDL Development for the
Roanoke River, Virginia (3/06)
(Excerpt)**
- **Bacteria TMDLs for Wilson Creek,
Ore Branch and Roanoke River
Watersheds, Virginia (2/06) (Excerpt)**
- **Endangered Species Information**

4ARNF002.97
VAW-L02R

Collection Date Time	Temp Celsius	Do Probe	pH (S.U.)
05/03/1989 09:30	11.3	NULL	7.49
08/03/1989 09:30	20.2	NULL	7.99
11/06/1989 11:00	8.4	NULL	8.4
02/12/1990 10:30	7.1	NULL	8.62
05/07/1990 09:30	13.4	NULL	8.53
08/07/1990 10:30	20	NULL	8.17
11/27/1990 13:30	9.4	NULL	8.84
10/17/1991 10:30	11.4	NULL	8.3
01/22/1992 09:20	2.7	13.6	8.4
04/28/1992 08:40	10.7	10	8.3
07/28/1992 09:00	20.1	8.1	7.7
10/28/1992 08:30	11.1	10.2	8.2
01/28/1993 08:40	4.3	12.5	7.4
04/21/1993 09:10	13.1	10.1	8.5
07/26/1993 09:15	22.9	7	8.3
10/26/1993 09:20	10	9.6	8.4
01/25/1994 09:20	4.6	12.2	9
04/21/1994 08:50	13	9.9	8.4
07/25/1994 08:35	22.5	7.1	8.2
01/18/1995 09:10	6.4	11.8	8.46
04/10/1995 08:25	16	8.4	8.03
07/24/1995 08:05	21	7.2	8.21
10/23/1995 14:55	12.5	11.3	8.53
01/17/1996 08:05	4.6	12.8	8.21
04/09/1996 07:45	6.9	11.6	8.33
07/29/1996 09:10	19.6	8.3	8.47
10/23/1996 08:00	12.7	8.9	8.1
01/13/1997 09:15	0	14.4	8.73
04/14/1997 08:45	9.2	10.5	8.36
10/22/1997 08:20	9.5	9.6	8.49
01/21/1998 08:20	2.7	12.5	8.29
04/14/1998 08:10	12.5	9.7	7.85
07/14/1998 09:00	22.3	7.6	8.19
10/27/1998 08:15	7.8	10.9	8.35
01/11/1999 08:30	0	13.7	8.93
04/14/1999 07:50	9.8	10.1	8.47
01/04/2007 12:30	5.9	12.3	7.7
03/13/2007 11:30	8.5	12.4	7.8
05/09/2007 14:00	16.6	11.8	7.7
07/10/2007 13:30	23.9	8.3	7.9
09/11/2007 13:30	22.7	7.2	6.4
11/01/2007 13:30	9.9	9.2	6.9
01/16/2008 15:00	1.6	15.1	6.7
03/05/2008 13:30	9.4	NULL	7.7
05/01/2008 14:30	14	10.2	8.2
07/07/2008 11:30	21	7.9	7.4
09/08/2008 11:30	20.9	6.4	7.4
11/06/2008 13:30	12.2	8.9	8
01/29/2013 15:50	8.9	11.2	8.2
02/14/2013 13:35	7	11.6	8.2

Temperature 90th Percentile

21.1 °C

Temperature 90th Percentile (January - May)

13.6 °C

pH 90th Percentile

8.5 S.U.

pH 10th Percentile

7.4 S.U.

VAW-L02R

4ARNF002.97 North Fork of the Roanoke River at the Route 603 bridge

Collection Date Time	Hardness, Total (mg/L as CaCO ₃)
2/12/1990 10:30	204
5/7/1990 9:30	220
8/7/1990 10:30	200
11/27/1990 13:30	230
10/17/1991 10:30	262
1/22/1992 9:20	250
7/28/1992 9:00	264
10/28/1992 8:30	278
1/28/1993 8:40	224
4/21/1993 9:10	196
7/26/1993 9:15	230
10/26/1993 9:20	264
1/25/1994 9:20	198
4/21/1994 8:50	214
7/25/1994 8:35	230
10/17/1994 8:55	296
1/18/1995 9:10	181
4/10/1995 8:25	218
7/24/1995 8:05	218
10/23/1995 14:55	247
1/17/1996 8:05	175
4/9/1996 7:45	200
7/29/1996 9:10	236
10/23/1996 8:00	212
1/13/1997 9:15	221
4/14/1997 8:45	229
7/14/1997 8:50	233
10/22/1997 8:20	258
1/21/1998 8:20	193
4/14/1998 8:10	177
7/14/1998 9:00	150
10/27/1998 8:15	258
1/11/1999 8:30	257
4/14/1999 7:50	180

Mean 224 mg/L

UPPER ROANOKE RIVER SUBAREA WATER QUALITY MANAGEMENT PLAN

VR 680-16-02-1

Prepared in accordance with the
Federal Water Pollution Control Act Amendments
of 1972, Section 303(e) as amended
by the Clean Water Act, P.L. 95-217

and

Section 62.1-44-15(3a) and (13) of the Virginia
State Water Control Law

Adopted by the State Water Control Board
on December 9, 1991

This Plan supersedes the Roanoke River Basin Comprehensive Water Resources Plan, Water
Quality Management Plan, December 9, 1976, and the Fifth Planning District Commission 208
Areawide Plan, July 1976, for those areas of Planning Districts 4, 5, 11 and 12 that are
in the Upper Roanoke River Subarea.

Effective Date: February 12, 1992

TABLE 5: WASTELOAD ALLOCATIONS BASED ON EXISTING DISCHARGE POINT¹
UPPER ROANOKE RIVER SUBAREA
HUC 03010101

Map Location	Stream Name	Segment Number	Segment Classification Standards	Mile to Mile ²	Discharger	VPDES Permit Number	VPDES Permit Limits BOD ₅ kg/day	303(e) ³ Wasteload Allocation BOD ₅ kg/day	Total Maximum Daily Load W.Q. Segments BOD ₅ kg/day
A	S.F. Roanoke R.	4A-1	E.L.-P W.Q.-FC	6.33-	Montgomery County PSA Shawsville STP	VA0024031	11.40	Secondary	
B	S.F. Roanoke R.	4A-1	E.L.-P W.Q.-FC	0.76-	Montgomery County PSA Elliston - Lafayette STP	VA0062219	28.00	Secondary	
C	X-trib. to N.F. Roanoke R.	4A-1	E.L.-P	0.25-	Lonnie J. Weddle Residence	VA0073229	0.03	Secondary	
D	X-trib. to N.F. Roanoke R.	4A-1	E.L.-P	0.24-	James Luther Residence	VA0073237	0.05	Secondary	
E	N.F. Roanoke R.	4A-1	E.L.-P	17.57-	Blacksburg Country Club, Inc.	VA0027481	4.00	Secondary	
1	Cedar Run	4A-1	E.L.-P	2.64-	Wolverine Gasket Co., Inc.	VA0052825	N/A	Secondary	
F	Cedar Run	4A-1	E.L.-P	0.40-	Wendell Hensely Residence	VA0066737	0.07	Secondary	
G	X-trib. to Cedar Run	4A-1	E.L.-P	0.20-	Ivan Gary Bland Residence	VA0077488	0.05	Secondary	
H	Cedar Run	4A-1	E.L.-P	0.46-	Velma D. Compton Residence	VA0080021	0.06	Secondary	
2	N.F. Roanoke R.	4A-1	E.L.-P	15.21-	Federal Mogul, Inc.	VA0001619	N/A	Secondary	
I	N.F. Roanoke R.	4A-1	E.L.-P	0.76-	VDOT - I-81 Ironore Rest Area	VA0060941	2.80	Secondary	
3	X-trib. to Roanoke R.	4A-2	E.L.-P	1.04-	Salem Stone Corp.	VA0006459	N/A	Secondary	
4	Roanoke R.	4A-2	W.Q.-DO,P	218.13-	Koppers Company, Inc.	VA0001333	N/A	N/A	N/A
5	Roanoke R.	4A-2	W.Q.-DO,P	216.33-	Roanoke Electric Steel Salem Plant	VA0001341	N/A	N/A	N/A
6	Snyders Br.	4A-2	E.L.-P	0.17-	Graham-White Mfg., Inc.	VA0030031	N/A	Secondary	
7	Bowman's Br.	4A-2	E.L.-P	0.20-	Mechanical Development Co., Inc.	VA0072311	N/A	Secondary	
8	Roanoke R.	4A-2	W.Q.-DO,P	212.61-	Rowe Furniture Corp., Inc.	VA0024716	N/A	N/A	N/A

D. Nutrient Policy

The SWCB has adopted a Policy for Nutrient Enriched Waters¹⁸ under the authority of Sections 62.1-44.15(3) and 62.1-44.15(10) of the Code of Virginia. This new policy provides for the control of discharges of phosphorus from point sources to state waters designated as "nutrient enriched." Smith Mountain Lake and all its tributaries are designated as "nutrient enriched waters" in the Upper Roanoke River Subarea.

The original 1976 Roanoke River Basin WQMP classified Smith Mountain Lake and its tributaries as phosphorus limited.¹⁹ The SWCB Policy for Nutrient Enriched Waters Section 3 C. states "This Policy shall not be construed to relax any effluent limitations concerning a nutrient that is imposed under any other requirement of State or Federal Law."²⁰ The following strategy shall apply to the Upper Roanoke River Subarea:

Phosphorus Strategy

Due to the increased and anticipated growth around Smith Mountain Lake, this Plan requires all dischargers to the impounded waters of Smith Mountain Lake to remove phosphorus from their effluents regardless of design flow. Phosphorus limitations shall be set as follows:

- (i) All discharges into the impounded waters of Smith Mountain Lake (pool elevation of 800 feet) and the Roanoke Regional STP shall maintain an effluent phosphorus concentration of 0.2 mg/l; a technology based value.
- (ii) All other discharges in Segments 4A-1, 4A-2 and 4A-3 (see Plate No. 2) shall maintain the effluent phosphorus concentration prescribed by the nutrient enrichment policy.

ELLISTON
& SHAWBURN
STP IN
4A-1

E. Toxics Management Program

The SWCB upon receipt of a VPDES permit application for issuance, reissuance or modification determines the need for toxics management. The first step of toxics

COMMONWEALTH OF VIRGINIA
STATE WATER CONTROL BOARD

VR 680-14-02 - POLICY FOR NUTRIENT ENRICHED WATERS

9 VAC 25-40-10 et seq

[Adopted: March 28-29, 1988 - Effective: May 25, 1988.]

§ 1. Purpose.

This policy provides for the control of discharges of nutrients from point sources affecting state waters that have been designated "nutrient enriched waters" in VR 680-21-07.03.

§ 2. Authority.

The Board has adopted this policy under the authority of §§ 62.1-44.15(3), 62.1-44.15(10) and 62.1-44.15(14) of the Code of Virginia.

§ 3. Strategy for "nutrient enriched waters".

As specified herein, the board shall reopen the NPDES permits of certain point source dischargers to "nutrient enriched waters" and shall impose effluent limitations on nutrients in the discharges authorized by those permits and certain new permits.

A. 1. All dischargers authorized by NPDES permits issued on or before July 1, 1988, to discharge 1 MGD or more to "nutrient enriched waters" shall be required to meet a monthly average total phosphorus effluent limitation of 2 mg/l as quickly as possible and in any event within 3 years following modification of the NPDES permit.

2. At the time of modification of the NPDES permit, any discharger who voluntarily accepts a permit to require installation and operation of nitrogen removal facilities to meet a monthly average total nitrogen effluent limitation of 10 mg/l for the months of April through October shall be allowed an additional year to meet the phosphorus effluent limitation in § 3 A.1.

B. All new source dischargers as defined in Regulation 6 with a permit issued after July 1, 1988 and a design flow greater than or equal to 0.05 MGD who propose to discharge to "nutrient enriched waters" shall be required to meet a monthly average total phosphorus effluent limitation of 2 mg/l.

C. This policy shall not be construed to relax any effluent limitation concerning a nutrient that is imposed under any other requirement of state or federal law. No time extensions outlined in § 3 A.2 for installation and

operation of nitrogen removal facilities shall be granted to a discharger if such an effluent limitation or a time extension is already imposed under any other requirement of state or federal law or regulation.

§ 4. Whenever the board determines that a permittee has the potential for discharging monthly average total phosphorus concentrations greater than or equal to 2 mg/l or monthly average total nitrogen concentrations greater than or equal to 10 mg/l to "nutrient enriched waters," the board may reopen the NPDES permit to impose monitoring requirements for nutrients in the discharge.

§ 5. The board anticipates that, following implementation of the foregoing requirements and evaluation of effects of this policy and of the results of the non-point source control programs, further limitations on discharges of phosphorus or of other nutrients may be necessary to control undesirable growths of aquatic plants.

§ 6. The board may entertain petitions from adjoining states to consider rulemakings to control nutrients entering tributaries to "nutrient enriched waters" of the adjoining state.

Benthic TMDL Development for the Roanoke River, Virginia

Submitted to

Virginia Department of Environmental Quality

Prepared by



THE Louis Berger Group, INC.

2300 N Street, NW
Washington, DC 20037

March 2006

EPA Approved 5/10/06
SWCB Approval 9/7/06

Executive Summary

Introduction

As required by Section 303(d) of the Clean Water Act and current EPA regulations, states are required to develop Total Maximum Daily Loads (TMDLs) for waterbodies that exceed water quality standards. The Roanoke River was included on Virginia's 1996 Section 303(d) TMDL Priority List and Report (DEQ, 1996) because of violations of the General Standard (benthic impairment). The headwaters of the Roanoke River originate in southwest Virginia. The Roanoke River flows through southcentral Virginia before crossing the North Carolina state line and discharging into the Albemarle Sound in North Carolina.

Impairment Listing

The Virginia Department of Environmental Quality (DEQ) uses biological monitoring of benthic macroinvertebrates as one method to assess support of the aquatic life use for a waterbody. Bioassessments of the benthic macroinvertebrate community of the Roanoke River were performed by DEQ using modified Rapid Bioassessment Protocols (EPA, 1999). Results of bioassessments indicated a moderately impaired benthic community at three monitoring stations on the river (4AROA202.20, 4AROA206.03, and 4AROA206.95). Therefore, since the river only partially supports the designated aquatic life use, the General Standard is being violated. As a result, the Roanoke River was included on the Section 303(d) list. Although biological assessments indicated the creek is impaired, additional analyses described in this report were required to identify the causal pollutant (stressor) and sources within the watershed.

The impaired benthic segments (ID #'s VAW-L04R-01 and VAW-L04R-02) are located on the mainstem Roanoke River in the upper section of the Roanoke River basin. Segment VAW-L04R-01 is 9.87 miles in length, beginning at the confluence of Mason Creek and the mainstem Roanoke River, and extending downstream to the Western Virginia Water Authority outfall on the Roanoke River. Approximately 1.46 miles of segment VAW-L04R-02 are listed for benthic impairment, beginning at the Western

Virginia Water Authority outfall on the Roanoke River, and ending at the backwaters of the Niagara Dam impoundment.

Watershed Characterization and Environmental Monitoring

The Roanoke River benthic impairment watershed is approximately 335,785 acres. Forested lands (69.9%), agricultural lands (17.5%), and developed lands (11.1%) represent the dominant land use types in the watershed. The Roanoke River benthic impairment watershed spans the Blue Ridge Mountain ecoregion and the Ridge and Valley ecoregion. The majority of soils in the watershed are comprised of the Berks-Weikert-Laidig, Carbo-Chilhowie-Frederick, Frederick-Carbo-Timberville, Hayesville-Parker-Peaks, and Groseclose-Litz-Shottower soils associations. Combined, these five soil associations account for almost 80 percent of the soils in the watershed.

Environmental monitoring data were vital to the identification of the pollutant stressor(s) that is impacting the benthic community of the Roanoke River. Available monitoring data included biological assessments, water quality monitoring data, and Discharge Monitoring Reports (DMR) for permitted facilities in the watershed. Biological monitoring data from 1994 to 2004 were analyzed. Instream water quality conditions were assessed primarily based on data collected at DEQ ambient monitoring stations, field data collected during biological monitoring surveys, and additional special monitoring studies. In addition, monitoring data contained in discharge monitoring reports were used to assess the impacts of the wastewater treatment facilities in the watershed.

Stressor Identification

Assessment of the primary stressor contributing to biological impairment in the Roanoke River was based on evaluations of candidate stressors that can potentially impact the river. The 2004 Water Quality Assessment 305(b)/303(d) Integrated Report Fact Sheet identified “urban nonpoint source runoff” and “sedimentation” as possible sources of impairment. Therefore, these pollutants were considered in the evaluation of candidate stressors along with other potential stressors such as nutrients, pH, temperature, ammonia, and toxic compounds. Each candidate stressor was evaluated on the basis of

available monitoring data, field observations, and consideration of potential sources in the watershed.

Assessment of the primary stressor contributing to biological impairment in the Roanoke River was based on evaluations of candidate stressors that can potentially impact the river. The 2004 Water Quality Assessment 305(b)/303(d) Integrated Report Fact Sheet identified “urban nonpoint source runoff” and “sedimentation” as possible sources of impairment. Therefore, these pollutants were considered in the evaluation of candidate stressors along with other potential stressors such as nutrients, pH, temperature, ammonia, and toxic compounds. Each candidate stressor was evaluated on the basis of available monitoring data, field observations, and consideration of potential sources in the watershed. The potential stressors were classified as:

- **Non-stressors**: The stressors with data indicating normal conditions and without water quality standard violations, or without any apparent impact
- **Possible stressors**: The stressors with data indicating possible links, however, with inconclusive data to show direct impact on the benthic community
- **Most probable stressors**: The stressors with the most complete data linking them to the poorer benthic community.

Metals and organics data collected in the Roanoke River show no evidence of toxicity; however, the toxicity testing results and historic stormwater monitoring data provide some qualitative evidence that toxic pulses may enter the river during storm events during the first flush. While it cannot be conclusively stated that toxicity is a most probable stressor affecting the benthic invertebrate communities, the possibility of some acute toxicity associated with stormwater flows should be further investigated, and the issues associated with elevated stormwater flows should be addressed in the implementation of the Roanoke River benthic impairment TMDL. Therefore, toxicity was classified as a possible stressor impacting benthic invertebrates in the biologically impaired segments of the Roanoke River

2.2 Permitted Discharge Facilities

There are 12 facilities holding active individual discharge permits in the Roanoke River benthic impairment watershed. The permit number, type, permitted flow, receiving waterbody, and status of each of the facilities holding individual permits are presented in Table 2-5 and their locations are presented in Figure 2-4. There are also a total of 152 active general permits in the Roanoke River benthic impairment watershed; 77 stormwater permits issued to industrial sites, 38 stormwater permits issued to construction sites, 17 permits issued to domestic sewage facilities, 11 permits issued to concrete facilities, 7 permits issued to mines, 1 permit issued to a cooling water facility, and 1 permit issued to a carwash (Appendix A). Based on the number of disturbed land-acres specified in the stormwater construction permits issued between 2002 and 2004, it is estimated that on the average approximately 467 acres are annually under construction.

Table 2-5: Facilities Holding Individual Permits in the Roanoke River Benthic Watershed

Permit Number	Facility Name	Facility Type	Design Flow (gpd) ¹	Receiving Waterbody	Status
VA0001252	Associated Asphalt Inc.	Industrial	54,000	Roanoke River	Active
VA0001333	Koppers Inc.	Industrial	600,000	Roanoke River	Active
VA0001473	Carvins Cove Water Filtration Plant	Industrial	474,000	Carvins Creek, UT	Active
VA0001589	Roanoke Electric Steel Corp.	Industrial	39,000	Peters Creek	Active
VA0001597	Norfolk Southern Railway Co.	Industrial	50,000	Lick Run, UT	Active
VA0024031	Shawsville Town STP	Municipal	200,000	SF Roanoke River	Active
VA0025020	Western Virginia Water Authority	Municipal	42,000,000	Roanoke River	Active
VA0027481	(Blacksburg Country Club STP)	Municipal	35,000	NF Roanoke River	Active
VA0062219	Elliston-Lafayette WWTP	Municipal	25,000	SF Roanoke River	Active
VA0077895	Roanoke Moose Lodge	Municipal	4,700	Mason Creek	Active
VA0088358	Fred Whitaker Co.	Industrial	151,000	Roanoke River	Active
VA0089991	Federal Mogul Corp.	Industrial	65,000	Wilson Creek, UT	Active
VA0091065	Crystal Springs WTP	Industrial	92,000	Roanoke River	Active

1: Gallons per Day

Table 7-1: Point Source Wasteload Allocations for Roanoke River

Facility Name	Permit Number	Annual Sediment Loads (tons/yr)	Allocated Loads (tons/yr)	Percent Reduction
Western Virginia Water Authority	VA0025020	472.2	472.2	0
Roanoke Electric Steel Corporation	VA0001589	92.9	92.9	0
Shawville Town STP	VA0024031	9.1	9.1	0
Carvin Cove Water Filtration Plant	VA0001473	17.6	17.6	0
Crystal Springs WTP	VA0091065	8.8	8.8	0
Norfolk Southern Railway Company - Shaffers Crossings	VA0001597	1.62	1.62	0
Ellison Lafayette WWTP	VA0062219	11.2	11.2	0
Blacksburg Country Club STP	VA0027481	1.57	1.57	0
Roanoke Moose Lodge	VA0077895	0.21	0.21	0
Total Allocated Load			615.3	0

Table 7-2: MS4 Wasteload Allocation by Land Use Type

Source	Land Use Type	Average Annual Sediment Load (tons/yr)		Percent Reduction
		Existing	Allocated	
Point Sources - MS4s	Open Water	0.0	0.0	0
	Low Intensity Residential	125.0	38.1	69.5
	High Intensity Residential	72.5	22.1	69.5
	Commercial/Industrial	3239.3	988.9	69.5
	Quarries/Strip Mines	401.4	122.6	69.5
	Transitional	321.7	98.1	69.5
	Deciduous Forest	78.6	78.6	0
	Evergreen Forest	6.1	6.1	0
	Mixed Forest	29.3	29.3	0
	Pasture/Hay	527.0	160.7	69.5
	Row Crop	203.7	62.3	69.5
	Urban/Recreational Grasses	31.8	9.7	69.5
	Woody Wetlands	0.0	0.0	0
	Emergent Wetlands	0.0	0.0	0
	Instream Erosion	9686.8	2956.4	69.5
Total		14,723	4,573	69.5

Bacteria TMDLs for Wilson Creek, Ore Branch and Roanoke River Watersheds, Virginia

Submitted by

Virginia Department of Environmental Quality

Prepared by



and



THE Louis Berger Group, INC.

2300 N Street, NW
Washington, DC 20037

EPA Approved 8/2/06
SWCB Approved 6/27/07

February 2006

Executive Summary

This report presents the development of Bacteria TMDLs for the Wilson Creek, Ore Branch and Roanoke River watersheds, located in the Upper Roanoke River Basin. Segments of Wilson Creek, Ore Branch and the Roanoke River were listed as impaired on Virginia's 1998 303(d) Total Maximum Daily Load Priority List and Report (DEQ, 1998) because of violations of the state's water quality standard for fecal coliform bacteria. These segments were also included on Virginia's 2002 303(d) Report on Impaired Waters and 2004 305(b)/303(d) Water Quality Assessment Integrated Report. The impaired segments are located in the Upper Roanoke River Basin in southwestern Virginia.

Description of the Study Area

Wilson Creek is a tributary to the North Fork Roanoke River and is located in Montgomery County, while Ore Branch is a tributary to the Roanoke River and flows from Roanoke County into Roanoke City. The impaired segment of the Roanoke River begins in Salem City and flows through Roanoke City into Roanoke County. All three streams are located in the Upper Roanoke River Basin (USGS Cataloging Unit 03010101). The watershed is approximately 371,658 acres (580 square miles) and drains portions of Floyd, Montgomery, Roanoke, Botetourt, Bedford and Franklin Counties and all of Salem and Roanoke Cities.

Bacteria TMDLs have already been approved for five impaired streams in the watershed: Carvin Creek, Glade Creek, Laymantown Creek, Lick Run and Tinker Creek. The first four impairments all flow into Tinker Creek, which then flows into the Roanoke River just upstream of the Roanoke City/Roanoke County line near Vinton, Virginia. The results of the bacteria TMDLs developed for the Tinker Creek watershed were input into the model developed for this study.

Approximately 40 percent of the drainage basin is located in Roanoke County, 32 percent in Montgomery County and 12 percent in Botetourt County; the remainder of the watershed is divided among Floyd, Franklin and Bedford Counties (six, two and one

percent, respectively) and the Cities of Roanoke and Salem (six and two percent, respectively). The watershed makes up 100 percent of the land area in the Cities of Roanoke and Salem, 90 percent of Roanoke County, 48 percent of Montgomery County, 13 percent of Botetourt County, eight percent of Floyd County and one percent each of Bedford and Franklin Counties. Interstate Route 81 (I-81) and U.S. Route 11 (US-11) run the entire length of the watershed from the northeast near Troutville to the southwest near Christiansburg. U.S. Route 221 (US-221) and the Blue Ridge Parkway pass through the lower section of the watershed in a northeast to southwest direction. U.S. Route 220 (US-220) runs the lower half of the watershed from the north near Trinity to the south near Boones Mill.

Impairment Description

The impaired segment of Wilson Creek (VAW-L02R-02) begins just east of Route 460, off Route 723 near Christiansburg and ends at the mouth of Wilson Creek on the North Fork of the Roanoke River just upstream of Route 603. The segment includes an unnamed tributary 1.65 mi. long that flows into Wilson Creek from the north. Fourteen of 27 samples (52%) collected at the listing station (4AWLN000.40) between January 1, 1998 and December 31, 2002 exceeded the fecal coliform bacteria instantaneous criterion of 400 cfu/100 ml, while two of three samples (67%) collected during the same period exceeded the *Escherichia coli* (*E. coli*) instantaneous criterion of 235 cfu/100 ml.

The entire length of Ore Branch is impaired (VAW-L04R-04), from the headwaters to the mouth of Ore Branch on the Roanoke River. Three of six samples (50%) collected at the listing station (4AORE000.19) between January 1, 1998 and December 31, 2002 exceeded the fecal coliform bacteria instantaneous criterion of 400 cfu/100 ml. In addition to the impaired segments on Wilson Creek and Ore Branch, this report also addresses two impairments on the Roanoke River. The first impaired segment (VAW-L04R-01) begins at the confluence of Mason Creek with the Roanoke River at river mile 210.47 and ends at the outfall of the Roanoke Regional STP at river mile 200.60. This impairment is based on two listing stations: 4AROA212.17 and 4AROA202.20. Eight of 41 samples (20%) collected at 4AROA212.17 and 17 of 58 samples (29%) collected at

4AROA202.20 between January 1, 1998 and December 31, 2002 exceeded the fecal coliform bacteria instantaneous criterion of 400 cfu/100 ml. The second impaired segment (VAW-L04R-02) begins at the Roanoke Regional STP outfall and ends at the Niagara Dam at river mile 198.36. The total length of these four segments is 23.09 miles.

Applicable Water Quality Standards

At the time of the Wilson Creek, Ore Branch and Roanoke River listings, the Virginia Bacteria Water Quality Standard was expressed in fecal coliform bacteria; however, the bacteria water quality standard has been recently changed and is now expressed in *E. coli*. Virginia's bacteria water quality standard currently states that *E. coli* bacteria shall not exceed a geometric mean of 126 *E. coli* counts per 100 ml of water for two or more samples over a 30-day period or an *E. coli* concentration of 235 counts per 100 ml of water at anytime. However, the loading rates for watershed-based modeling are available only in terms of the previous standard, fecal coliform bacteria. Therefore, the TMDL was expressed in *E. coli* by converting modeled daily fecal coliform concentrations to daily *E. coli* concentrations using an in-stream translator. This TMDL was required to meet both the geometric mean and instantaneous *E. coli* water quality standard.

Watershed Characterization

Land use characterization was based on National Land Cover Data (NLCD) developed by USGS. The watershed is predominantly forested, with some agricultural lands clustered in the northeastern portion of the watershed. Urban and residential areas are clustered around the Cities of Roanoke and Salem in the eastern half of the watershed, with some smaller clusters located on the western edge of the watershed near Christianburg. Forested and agricultural lands consist of 73.2 and 15.4 percent respectively of the total drainage area. Urban lands consists of 10 percent of total drainage area.

The potential sources of fecal coliform include run-off from livestock grazing, manure applications, industrial processes, residential, and domestic pets waste. Some of these sources are driven by dry weather and others are driven by wet weather. The potential sources of fecal coliform in the watershed were identified and characterized. These

5.3.1.3. Roanoke River Waste Load Allocation

There are 6 industrial and municipal permitted facilities in the Roanoke River watershed permitted to discharge bacteria (see Chapter 4). For this TMDL, the wasteload allocation for permitted facilities is to maintain discharge at the design flow limits and bacteria concentrations at their permitted levels of 126 cfu/100mL. Table 5-3 shows the loading from the industrial and municipal permitted facilities in the watershed.

Table 5-3: Roanoke River Wasteload Allocation for E. coli

Point Source	Name	Existing Load (cfu/yr)	Allocated Load (cfu/yr)	Percent Reduction
VA0077895	Roanoke Moose Lodge	8.18E+09	8.18E+09	0%
VA0027481	Blacksburg Country Club Sewage Treatment Plant	6.10E+10	6.10E+10	0%
VA0062219	Montgomery County PSA – Elliston-Lafayette WWTP	4.34E+11	4.34E+11	0%
VA0024031	Shawsville Town – Sewage Treatment Plant	3.48E+11	3.48E+11	0%
VA0025020	Western Virginia Water Authority WPC	1.08E+14	1.08E+14	0%
VA0028711	Suncrest Heights	3.48E+10	3.48E+10	0%
Total		1.09E+14	1.09E+14	0%

Within Wilson Creek there are seven MS4s permits requiring TMDL allocations. Table 5-4 shows the waste load allocations for each MS4. The waste load allocations were based on each municipality's share of the contributing urbanized area of the impairment. Appendix F outlines the steps used in the development of the MS4 E-coli allocations.

Table 5-4: Roanoke River MS4s Wasteload Allocation for E. coli

MS4 Permit Holder	Permit Number	Existing Load (cfu/yr)	Allocated Load (cfu/yr)	Percent Reduction
Roanoke County	VAR040022	2.37E+13	2.84E+11	98.8%
City of Roanoke	VAR040004	1.61E+13	1.93E+11	98.8%
Town of Vinton	VAR040026	2.77E+12	3.32E+10	98.8%
City of Salem	VAR040010	1.91E+13	2.29E+11	98.8%
VDOT Roanoke Urban Area	VAR040017	8.94E+11	1.07E+10	98.8%
Virginia Western Community College	VAR040030	1.44E+11	1.73E+09	98.8%
Virginia Medical Center	VAR040050	6.56E+11	7.87E+09	98.8%
Total		6.34E+13	7.60E+11	98.8%

France, Becky (DEQ)

From: Aschenbach, Ernie (DGIF)
Sent: Wednesday, September 26, 2012 11:40 AM
To: France, Becky (DEQ)
Cc: ProjectReview (DGIF); Cason, Gladys (DGIF); nhreview (DCR); Susan_Lingenfelter@fws.gov
Subject: ESSLog 24642; DEQ VPDES re-issuance VA 0027481; Blacksburg Country Club WWTP in Blacksburg, Virginia

We have reviewed the above-referenced VPDES permit re-issuance for a facility with a current design flow of 0.35 Million Gallons per Day (MGD). The 7Q10 of the receiving reach of the North Fork Roanoke River is 1.7 MGD.

According to our records, the North Fork Roanoke River is designated Threatened and Endangered (T&E) species water for the federal Endangered state Endangered (FESE) Roanoke logperch and state Threatened (ST) orangefin madtom.

In general, we recommend ultraviolet (UV) disinfection rather than chlorination. The ammonia limits proposed within the EPA rule are expressed on the basis of total ammonia-nitrogen (TAN). The proposed EPA ammonia limit for waters with mussels (not T&E mussels, any mussel species) is:

- CMC (Criterion Maximum Concentration or acute) - 2.9 mg N/L (at pH 8 and 25C)
- CCC (Criterion Continuous Concentration or chronic) - 0.26 mg N//L (at pH 8 and 25C) with a 4-day average within the 30 day average period no higher than 2.5 the CCC, which would be 0.65 mg N/L.

The ammonia limits proposed within the EPA rule are the best information currently available regarding ammonia levels protective of mussels. Therefore, we recommend the EPA values be implemented in this permit for this and all future VPDES permits.

This project is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding the protection of these resources. We also recommend contacting the USFWS regarding all federally listed species.

Provided the applicant adheres to the effluent characteristics identified in the permit application, we do not anticipate the issuance of this permit to result in adverse impact to T&E species waters or their associated species. Thank you for the opportunity to provide comments.

Ernie Aschenbach
Environmental Services Biologist
Virginia Dept. of Game and Inland Fisheries
P.O. Box 11104
4010 West Broad Street
Richmond, VA 23230
Phone: (804) 367-2733
FAX: (804) 367-2427
Email: Ernie.Aschenbach@dgif.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources



David A. Johnson
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Division of Natural Heritage
217 Governor Street
Richmond, Virginia 23219-2010
(804) 786-7951

September 13, 2012

Becky France
DEQ-BRRO
3019 Peters Creek Road
Roanoke, VA 24019

Re: VA0027481, Blacksburg Country Club WWTP

Dear Ms. France:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the North Fork Roanoke River - Den Creek Stream Conservation Unit (SCU) is within the project site. SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach. SCUs are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The North Fork Roanoke River - Den Creek SCU has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resource of concern associated with this SCU is:

Percina rex

Roanoke logperch

G1G2/S1S2/LE/LE

The Roanoke logperch is endemic to the Roanoke and Chowan River drainages in Virginia (Burkhead and Jenkins, 1991) and inhabits medium and large, warm and usually clear rivers with sandy to boulder spotted bottoms (NatureServe, 2009). Please note that this species is currently classified as endangered by the United States Fish and Wildlife Service (USFWS) and the Virginia Department of Game and Inland Fisheries (VDGIF).

The Roanoke logperch is threatened by channelization, siltation, impoundment, pollution, and de-watering activities (Burkhead & Jenkins, 1991).

In addition, the North Fork Roanoke River has been designated by the VDGIF as a "Threatened and Endangered Species Water". The species associated with this T & E Water are the Orangefin madtom (*Noturus gilberti*, G2/S2/SOC/LT) and the Roanoke logperch.

To minimize impacts to aquatic resources, DCR recommends the use of uv/ozone to replace chlorination disinfection and utilization of new technologies as they become available to improve water quality. Due to the legal status of the Roanoke logperch and Orange-fin madtom, DCR also recommends coordination with the USFWS and the VDGIF to ensure compliance with protected species legislation.

This project is situated on karst-forming carbonate rock and can be characterized by sinkholes, caves, disappearing streams, and large springs. If such features are encountered during the project, please coordinate with Wil Orndorff (540-553-1235, Wil.Orndorff@dcv.virginia.gov) to document and minimize adverse impacts. Discharge of runoff to sinkholes or sinking streams, filling of sinkholes, and alteration of cave entrances can lead to surface collapse, flooding, erosion and sedimentation, groundwater contamination, and degradation of subterranean habitat for natural heritage resources. If the project involves filling or "improvement" of sinkholes or cave openings, DCR would like detailed location information and copies of the design specifications. In cases where sinkhole improvement is for stormwater discharge, copies of VDOT Form EQ-120 will suffice.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

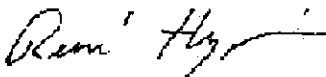
Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The VDGIF maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Gladys Cason (804-367-0909 or Gladys.Cason@dgif.virginia.gov).

Should you have any questions or concerns, feel free to contact me at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,



S. Rene' Hypes
Project Review Coordinator

CC: Kim Smith, USFWS
Ernie Aschenbach, VDGIF
Wil Orndorff, DCR-Karst

Literature Cited

Burkhead, N.M. and R.E. Jenkins. 1991. Roanoke logperch. In *Virginia's Endangered Species: Proceedings of a Symposium*. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia. p. 395-397.

NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: June 21, 2010).

Attachment F

Wasteload and Limit Calculations

- **Mixing Zone Calculations (MIXER)**
- **Effluent Data**
- **Wasteload Allocation Spreadsheet**
- **STATS Program Results (ammonia, TRC)**

Mixing Zone Predictions for

Blacksburg Country Club WWTP

Effluent Flow = 0.035 MGD
Stream 7Q10 = 1.8 MGD
Stream 30Q10 = 2.3 MGD
Stream 1Q10 = 1.6 MGD
Stream slope = 0.002 ft/ft
Stream width = 12 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .5907 ft
Length = 200.31 ft
Velocity = 4006 ft/sec
Residence Time = .0058 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = .6866 ft
Length = 174.99 ft
Velocity = .4386 ft/sec
Residence Time = .0046 days

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = .5499 ft
Length = 213.47 ft
Velocity = .3835 ft/sec
Residence Time = .1546 hours

Recommendation:

A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

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Effluent pH (S.U.)

Date Due	min	max
10-Nov-08	7.3	8
10-Dec-08	7.2	8.4
10-Jan-09	6.9	8.2
10-Feb-09	7.5	8.5
10-Mar-09	7.2	8.4
10-Apr-09	7.2	7.9
10-May-09	7.6	8.2
10-Jun-09	7.4	8.2
10-Jul-09	7.4	8.1
10-Aug-09	7.4	7.9
10-Sep-09	7.4	7.8
10-Oct-09	7.5	8.1
10-Nov-09	7.2	8
10-Dec-09	6.7	8
10-Jan-10	6.6	8.6
10-Feb-10	6.6	7.7
10-Mar-10	6.6	8.4
10-Apr-10	6.6	8.1
10-May-10	6.8	7.9
10-Jun-10	6.7	7.8
10-Jul-10	6.8	7.4
10-Aug-10	6.8	7.8
10-Sep-10	6.7	7.5
10-Oct-10	6.9	8.1
10-Nov-10	7.4	8
10-Dec-10	7.2	7.9
10-Jan-11	6.8	7.8
10-Feb-11	6.8	8.6
10-Mar-11	6.8	7.5
10-Apr-11	6.5	7.7
10-May-11	7.2	8.6
10-Jun-11	7	7.8
10-Jul-11	7.1	8.9
10-Aug-11	6.8	8.1
10-Sep-11	7	7.8
10-Oct-11	6.7	7.8
10-Nov-11	6.7	8
10-Dec-11	6.7	8.4
10-Jan-12	7.1	8.7
10-Feb-12	7.2	8.9
10-Mar-12	6.8	8.4
10-Apr-12	6.8	8.8
10-May-12	6.5	7.5
10-Jun-12	6.9	7.6
10-Jul-12	6.9	8.3
10-Aug-12	7	8
10-Sep-12	7.4	8.1
10-Oct-12	6.7	8.5
10-Nov-12	7	7.7
10-Dec-12	6.9	8.4
10-Jan-13	7.1	8.2
10-Feb-13	7	8.2

90th Percentile pH	8.6 S.U.
10th Percentile pH	6.6 S.U.

Blacksburg Country Club WWTP
 VPDES Permit No. VA0027481

Effluent Temperature

Date Due	°C
10-Nov-08	26.3
10-Dec-08	15.3
10-Jan-09	12.2
10-Feb-09	10.4
10-Mar-09	9.6
10-Apr-09	11
10-May-09	15.8
10-Jun-09	17.5
10-Jul-09	20.1
10-Aug-09	22.2
10-Sep-09	22.4
10-Oct-09	21.3
10-Nov-09	17.9
10-Dec-09	15.3
10-Jan-10	12.2
10-Feb-10	8.6
10-Mar-10	8.6
10-Apr-10	11.5
10-May-10	16.4
10-Jun-10	18.7
10-Jul-10	21.9
10-Aug-10	23.7
10-Sep-10	23.8
10-Oct-10	22.7
10-Nov-10	19.5
10-Dec-10	16.1
10-Jan-11	11.7
10-Feb-11	8.4
10-Mar-11	10
10-Apr-11	12.9
10-May-11	16.2
10-Jun-11	19.2
10-Jul-11	20.9
10-Aug-11	23.6
10-Sep-11	24.5
10-Oct-11	24
10-Nov-11	20.1
10-Dec-11	16.9
10-Jan-12	12.9
10-Feb-12	10.2
10-Mar-12	12.3
10-Apr-12	14.4
10-May-12	15.8
10-Jun-12	22.1
10-Jul-12	22.2
10-Aug-12	23.8
10-Sep-12	23.6
10-Oct-12	22.8
10-Nov-12	21
10-Dec-12	17.6
10-Jan-13	12.5
10-Feb-13	11.8

90th Percentile Temp 23.7 °C
 90th Percentile temp 15.8 °C (Jan. - May)

Effluent (Outfall 001)

Date Due	Flow (MGD)	BOD ₅ (mg/L)		BOD ₅ (g/d)		TSS (mg/L)		TSS (g/d)	
	Average	Average	Maximum	Average	Maximum	Average	Maximum	Average	Maximum
Limits	0.035	30	45	3900	5900	30	45	3900	5900
10-Nov-08	0.023	16	16	1300	1300	5	5	400	400
10-Dec-08	0.025	6	6	570	570	15	15	1450	1450
10-Jan-09	0.036	8	8	860	860	4	4	430	430
10-Feb-09	0.048	3	3	250	250	3	3	250	250
10-Mar-09	0.033	3	3	360	360	34	34	4100	4100
10-Apr-09	0.069	8	8	1770	1770	2	2	440	440
10-May-09	0.04	20	20	2553	2553	16	16	2020	2020
10-Jun-09	0.069	14	14	4390	4390	6	6	1880	1880
10-Jul-09	0.056	12	12	1580	1580	3	3	400	400
10-Aug-09	0.038	9	9	1150	1150	8	8	1020	1020
10-Sep-09	0.052	10	10	880	880	10	10	880	880
10-Oct-09	0.03	13	13	1540	1540	31	31	3660	3660
10-Nov-09	0.037	11	11	2330	2330	18	18	3820	3820
10-Dec-09	0.066	14	14	2310	2710	17	17	2810	2810
10-Jan-10	0.076	0	0	0	0	9	9	2160	2160
10-Feb-10	0.077	5	5	1460	1460	9	9	2340	2340
10-Mar-10	0.076	5	5	1240	1240	8	8	1980	1980
10-Apr-10	0.076	12	12	3460	3460	13	13	3740	3740
10-May-10	0.039	5	5	740	740	23	23	3400	3400
10-Jun-10	0.042	19	19	4950	4950	3	3	780	780
10-Jul-10	0.0346	2	2	140	140	21	21	1490	1490
10-Aug-10	0.028	19	19	1910	1910	13	13	1300	1300
10-Sep-10	0.036	0	0	0	0	22	22	2500	2500
10-Oct-10	0.033	17	17	2360	2360	54	54	7500	7500
10-Nov-10	0.032	2	2	260	260	8	8	1030	1030
10-Dec-10	0.035	3	3	320	320	9	9	970	970
10-Jan-11	0.037	5	5	700	700	53	53	7420	7420
10-Feb-11	0.038	4	4	550	550	46	46	6270	6270
10-Mar-11	0.055	15	15	7320	7320	10	10	4880	4880
10-Apr-11	0.082	10	10	1730	1730	7	7	1210	1210
10-May-11	0.081	0	0	0	0	2	2	500	500
10-Jun-11	0.076	15	15	4430	4430	6	6	1780	1780
10-Jul-11	0.045	0	0	0	0	16	16	2060	2060
10-Aug-11	0.041	0	0	0	0	9	9	1360	1360
10-Sep-11	0.031	5	5	470	470	6	6	570	570
10-Oct-11	0.046	0	0	0	0	4	4	730	730
10-Nov-11	0.036	3	3	250	250	3	3	250	250
10-Dec-11	0.044	13	13	1130	1130	5	5	430	430
10-Jan-12	0.073	0	0	0	0	25	25	2200	2200
10-Feb-12	0.06	0	0	0	0	8	8	1350	1350
10-Mar-12	0.061	4	4	2830	2830	7	7	4960	4960
10-Apr-12	0.078	3	3	580	580	4	4	780	780
10-May-12	0.056	11	11	2330	2330	3	3	640	640
10-Jun-12	0.032	<QL	<QL	<QL	<QL	2	2	370	370
10-Jul-12	0.042	5	5	890	890	20	20	3560	3560
10-Aug-12	0.037	<QL	<QL	<QL	<QL	2	2	330	330
10-Sep-12	0.038	5	5	360	360	4	4	290	290
10-Oct-12	0.03	6	6	660	660	6	6	660	660
10-Nov-12	0.028	<QL	<QL	<QL	<QL	6	6	570	570
10-Dec-12	0.028	6	6	200	200	15	15	570	570
10-Jan-13	0.031	3	3	500	500	7	7	1170	1170
10-Feb-13	0.066	4	4	910	910	4	4	910	910

Effluent

Date Due	TRC (mg/L)		<i>E. coli</i> (cfu/100 mL)
	Average	Maximum	Maximum
Limits	0.05	0.06	126
10-Nov-08	<QL	0.01	32
10-Dec-08	<QL	0.04	109
10-Jan-09	<QL	0.14	24
10-Feb-09	<QL	0.03	56
10-Mar-09	<QL	0.05	562
10-Apr-09	0.052	0.08	23
10-May-09	0.047	0.014	123
10-Jun-09	<QL	<QL	>728
10-Jul-09	<QL	<QL	1015.85
10-Aug-09	<QL	<QL	411
10-Sep-09	<QL	<QL	2046
10-Oct-09	<QL	<QL	2397
10-Nov-09	<QL	<QL	>2420
10-Dec-09	<QL	<QL	>2420
10-Jan-10	<QL	<QL	25
10-Feb-10	<QL	<QL	1509
10-Mar-10	<QL	<QL	3
10-Apr-10	<QL	<QL	>2420
10-May-10	<QL	<QL	>1937
10-Jun-10	<QL	<QL	>24196
10-Jul-10	<QL	<QL	>24196
10-Aug-10	<QL	<QL	6625
10-Sep-10	<QL	<QL	1720
10-Oct-10	<QL	<QL	30600
10-Nov-10	<QL	<QL	8
10-Dec-10	<QL	<QL	<1
10-Jan-11	<QL	<QL	>220
10-Feb-11	<QL	<QL	3
10-Mar-11	<QL	<QL	365
10-Apr-11	<QL	<QL	11
10-May-11	<QL	<QL	49
10-Jun-11	<QL	<QL	6940
10-Jul-11	<QL	<QL	<1
10-Aug-11	<QL	<QL	0
10-Sep-11	<QL	<QL	3
10-Oct-11	<QL	<QL	963
10-Nov-11	<QL	<QL	1
10-Dec-11	<QL	<QL	>2420
10-Jan-12	<QL	<QL	7
10-Feb-12	<QL	<QL	50
10-Mar-12	<QL	<QL	9
10-Apr-12	<QL	<QL	<1.0
10-May-12	<QL	<QL	110
10-Jun-12	<QL	<QL	<1.0
10-Jul-12	<QL	<QL	1
10-Aug-12	<QL	<QL	4
10-Sep-12	<QL	<QL	12
10-Oct-12	<QL	<QL	1
10-Nov-12	<QL	<QL	120
10-Dec-12	<QL	<QL	2
10-Jan-13	<QL	<QL	66
10-Feb-13	<QL	<QL	49

Blacksburg Country Club WWTP
VPDES Permit No. VA0027481

Annual Effluent TSS Loading

Date Due	TSS
	Load (tons)
Limits	1.57
10-Jan-09	0.51
10-Jan-10	0.1635
10-Jan-11	0.906
10-Jan-12	0.14
10-Jan-13	0.09

Blacksburg Country Club WWTP
VPDES Permit No. VA0027481

Summary of Ammonia Data

Date	(mg/L)
Nov-08	0.20
Dec-08	7.46
Jan-09	9.67
Feb-09	2.6
Mar-09	1.83
Apr-09	6.97
May-09	3.93
Jun-09	11.6
Jul-09	9.02
Aug-09	11.5
Sep-09	14.1
Oct-09	11
Nov-09	18.9
Dec-09	6.25
Jan-10	5.89
Feb-10	6.06
Mar-10	4.99
Apr-10	19.9
May-10	10.8
Jun-10	17.0
8/31/10	16.9
9/15/10	8.8*
9/16/10	11*
9/17/10	6.5*
9/24/10	4.9*
9/28/10	5.1*
9/29/10	9.1
10/25/10	12.9
11/30/10	4.6
12/22/10	6.6

*HACH Method

Blacksburg Country Club WWTP
VPDES Permit No. VA0027481

Summary of Total Phosphorus Monitoring Data

Date	Phosphorus (mg/L)
8/20/2003	0.55
9/29/2003	0.22
11/13/2003	0.24
1/23/2004	0.31
2/26/2004	0.22
3/26/2004	0.45
5/27/2004	0.63
6/29/2004	0.20
7/26/2004	0.220
8/27/2004	1.34
9/30/2004	2.75
10/29/2004	0.61
11/19/2004	0.185
12/20/2004	0.978
1/26/2005	4.50
2/25/2005	1.34
3/30/2005	0.170
4/20/2005	0.527
5/31/2005	3.48

Maximum 4.5 mg/L
Mean 1.00 mg/L

Blacksburg Country Club WWTP
VPDES Permit No. VA0027481

Effluent

Date Due	TRC (mg/L)		<i>E. coli</i> (cfu/100 mL)
	Average	Maximum	Maximum
Limits	0.05	0.06	126
10-Nov-08	<QL	0.01	32
10-Dec-08	<QL	0.04	109
10-Jan-09	<QL	0.14	24
10-Feb-09	<QL	0.03	56
10-Mar-09	<QL	0.05	562
10-Apr-09	0.052	0.08	23
10-May-09	0.047	0.014	123
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10-Nov-09	<QL	<QL	>2420
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10-Jan-10	<QL	<QL	25
10-Feb-10	<QL	<QL	1509
10-Mar-10	<QL	<QL	3
10-Apr-10	<QL	<QL	>2420
10-May-10	<QL	<QL	>1937
10-Jun-10	<QL	<QL	>24196
10-Jul-10	<QL	<QL	>24196
10-Aug-10	<QL	<QL	6625
10-Sep-10	<QL	<QL	1720
10-Oct-10	<QL	<QL	30600
10-Nov-10	<QL	<QL	8
10-Dec-10	<QL	<QL	<1
10-Jan-11	<QL	<QL	>220
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10-Apr-11	<QL	<QL	11
10-May-11	<QL	<QL	49
10-Jun-11	<QL	<QL	6940
10-Jul-11	<QL	<QL	<1
10-Aug-11	<QL	<QL	0
10-Sep-11	<QL	<QL	3
10-Oct-11	<QL	<QL	963
10-Nov-11	<QL	<QL	1
10-Dec-11	<QL	<QL	>2420
10-Jan-12	<QL	<QL	7
10-Feb-12	<QL	<QL	50
10-Mar-12	<QL	<QL	9
10-Apr-12	<QL	<QL	<1.0
10-May-12	<QL	<QL	110
10-Jun-12	<QL	<QL	<1.0
10-Jul-12	<QL	<QL	1
10-Aug-12	<QL	<QL	4
10-Sep-12	<QL	<QL	12
10-Oct-12	<QL	<QL	1
10-Nov-12	<QL	<QL	120
10-Dec-12	<QL	<QL	2
10-Jan-13	<QL	<QL	66
10-Feb-13	<QL	<QL	49

FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: Blacksburg Country Club WWTP

Permit No.: VA0027481

Receiving Stream: Roanoke River, North Fork

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information

Mean Hardness (as CaCO3) =	224 mg/L
90% Temperature (Annual) =	21.1 deg C
90% Temperature (Wet season) =	13.6 deg C
90% Maximum pH =	8.5 SU
10% Maximum pH =	7.4 SU
Tier Designation (1 or 2) =	2
Public Water Supply (PWS) Y/N? =	n
Trout Present Y/N? =	n
Early Life Stages Present Y/N? =	y

Stream Flows

1Q10 (Annual) =	1.6 MGD
7Q10 (Annual) =	1.8 MGD
30Q10 (Annual) =	2.3 MGD
1Q10 (Wet season) =	3.1 MGD
30Q10 (Wet season) =	5.3 MGD
30Q5 =	2.8 MGD
Harmonic Mean =	7.7 MGD

Mixing Information

Annual - 1Q10 Mix =	100 %
- 7Q10 Mix =	100 %
- 30Q10 Mix =	100 %
Wet Season - 1Q10 Mix =	100 %
- 30Q10 Mix =	100 %

Effluent Information

Mean Hardness (as CaCO3) =	224 mg/L
90% Temp (Annual) =	23.7 deg C
90% Temp (Wet season) =	15.8 deg C
90% Maximum pH =	8.6 SU
10% Maximum pH =	6.6 SU
Discharge Flow =	0.035 MGD

Use for permit

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	na	9.9E+02	--	--	na	8.0E+04	--	--	na	9.9E+01	--	--	na	8.0E+03	--	--	na	8.0E+03
Acrolein	0	--	--	na	9.3E+00	--	--	na	7.5E+02	--	--	na	9.3E-01	--	--	na	7.5E+01	--	--	na	7.5E+01
Acrylonitrile ^c	0	--	--	na	2.5E+00	--	--	na	5.5E+02	--	--	na	2.5E-01	--	--	na	5.5E+01	--	--	na	5.5E+01
Aldrin ^c	0	3.0E+00	--	na	5.0E-04	1.4E+02	--	na	1.1E-01	7.5E-01	--	na	5.0E-05	3.5E+01	--	na	1.1E-02	3.5E+01	--	na	1.1E-02
Ammonia-N (mg/l) (Yearly)	0	3.19E+00	7.09E-01	na	--	1.5E+02	4.7E+01	na	--	7.98E-01	1.77E-01	na	--	3.7E+01	1.2E+01	na	--	3.7E+01	1.2E+01	na	--
Ammonia-N (mg/l) (High Flow)	0	3.20E+00	1.09E+00	na	--	2.9E+02	1.7E+02	na	--	7.99E-01	2.72E-01	na	--	7.2E+01	4.1E+01	na	--	7.2E+01	4.1E+01	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	3.2E+06	--	--	na	4.0E+03	--	--	na	3.2E+05	--	--	na	3.2E+05
Antimony	0	--	--	na	6.4E+02	--	--	na	5.2E+04	--	--	na	6.4E+01	--	--	na	5.2E+03	--	--	na	5.2E+03
Arsenic	0	3.4E+02	1.5E+02	na	--	1.6E+04	7.9E+03	na	--	8.5E+01	3.8E+01	na	--	4.0E+03	2.0E+03	na	--	4.0E+03	2.0E+03	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Benzene ^c	0	--	--	na	5.1E+02	--	--	na	1.1E+05	--	--	na	5.1E+01	--	--	na	1.1E+04	--	--	na	1.1E+04
Benzidine ^c	0	--	--	na	2.0E-03	--	--	na	4.4E-01	--	--	na	2.0E-04	--	--	na	4.4E-02	--	--	na	4.4E-02
Benzo (a) anthracene ^c	0	--	--	na	1.8E-01	--	--	na	4.0E+01	--	--	na	1.8E-02	--	--	na	4.0E+00	--	--	na	4.0E+00
Benzo (b) fluoranthene ^c	0	--	--	na	1.8E-01	--	--	na	4.0E+01	--	--	na	1.8E-02	--	--	na	4.0E+00	--	--	na	4.0E+00
Benzo (k) fluoranthene ^c	0	--	--	na	1.8E-01	--	--	na	4.0E+01	--	--	na	1.8E-02	--	--	na	4.0E+00	--	--	na	4.0E+00
Benzo (a) pyrene ^c	0	--	--	na	1.8E-01	--	--	na	4.0E+01	--	--	na	1.8E-02	--	--	na	4.0E+00	--	--	na	4.0E+00
Bis(2-Chloroethyl) Ether ^c	0	--	--	na	5.3E+00	--	--	na	1.2E+03	--	--	na	5.3E-01	--	--	na	1.2E+02	--	--	na	1.2E+02
Bis(2-Chloroisopropyl) Ether	0	--	--	na	6.5E+04	--	--	na	5.3E+06	--	--	na	6.5E+03	--	--	na	5.3E+05	--	--	na	5.3E+05
Bis 2-Ethylhexyl Phthalate ^c	0	--	--	na	2.2E+01	--	--	na	4.9E+03	--	--	na	2.2E+00	--	--	na	4.9E+02	--	--	na	4.9E+02
Bromoform ^c	0	--	--	na	1.4E+03	--	--	na	3.1E+05	--	--	na	1.4E+02	--	--	na	3.1E+04	--	--	na	3.1E+04
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.5E+05	--	--	na	1.9E+02	--	--	na	1.5E+04	--	--	na	1.5E+04
Cadmium	0	9.7E+00	2.1E+00	na	--	4.6E+02	1.1E+02	na	--	2.4E+00	5.3E-01	na	--	1.1E+02	2.8E+01	na	--	1.1E+02	2.8E+01	na	--
Carbon Tetrachloride ^c	0	--	--	na	1.6E+01	--	--	na	3.5E+03	--	--	na	1.6E+00	--	--	na	3.5E+02	--	--	na	3.5E+02
Chlordane ^c	0	2.4E+00	4.3E-03	na	8.1E-03	1.1E+02	2.3E-01	na	1.8E+00	6.0E-01	1.1E-03	na	8.1E-04	2.9E+01	5.6E-02	na	1.8E-01	2.9E+01	5.6E-02	na	1.8E-01
Chloride	0	8.6E+05	2.3E+05	na	--	4.0E+07	1.2E+07	na	--	2.2E+05	5.8E+04	na	--	1.0E+07	3.0E+06	na	--	1.0E+07	3.0E+06	na	--
TRC	0	1.9E+01	1.1E+01	na	--	8.9E+02	5.8E+02	na	--	4.8E+00	2.8E+00	na	--	2.2E+02	1.4E+02	na	--	2.2E+02	1.4E+02	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.3E+05	--	--	na	1.6E+02	--	--	na	1.3E+04	--	--	na	1.3E+04

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane ^c	0	--	--	na	1.3E+02	--	--	na	2.9E+04	--	--	na	1.3E+01	--	--	na	2.9E+03	--	--	na	2.9E+03
Chloroform	0	--	--	na	1.1E+04	--	--	na	8.9E+05	--	--	na	1.1E+03	--	--	na	8.9E+04	--	--	na	8.9E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.3E+05	--	--	na	1.6E+02	--	--	na	1.3E+04	--	--	na	1.3E+04
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.2E+04	--	--	na	1.5E+01	--	--	na	1.2E+03	--	--	na	1.2E+03
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	3.9E+00	2.1E+00	na	--	2.1E-02	1.0E-02	na	--	9.7E-01	5.4E-01	na	--	9.7E-01	5.4E-01	na	--
Chromium III	0	1.1E+03	1.4E+02	na	--	5.2E+04	7.5E+03	na	--	2.8E+02	3.6E+01	na	--	1.3E+04	1.9E+03	na	--	1.3E+04	1.9E+03	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	7.5E+02	5.8E+02	na	--	4.0E+00	2.8E+00	na	--	1.9E+02	1.4E+02	na	--	1.9E+02	1.4E+02	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	1.0E+01	--	--	--	8.1E+02	--	--	--	na	--
Chrysene ^c	0	--	--	na	1.8E-02	--	--	na	4.0E+00	--	--	na	1.8E-03	--	--	na	4.0E-01	--	--	na	4.0E-01
Copper	1.61	2.9E+01	1.8E+01	na	--	1.3E+03	8.5E+02	na	--	8.4E+00	5.7E+00	na	--	3.2E+02	2.1E+02	na	--	3.2E+02	2.1E+02	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	1.0E+03	2.7E+02	na	1.3E+06	5.5E+00	1.3E+00	na	1.6E+03	2.6E+02	6.8E+01	na	1.3E+05	2.6E+02	6.8E+01	na	1.3E+05
DDD ^c	0	--	--	na	3.1E-03	--	--	na	6.9E-01	--	--	na	3.1E-04	--	--	na	6.9E-02	--	--	na	6.9E-02
DDE ^c	0	--	--	na	2.2E-03	--	--	na	4.9E-01	--	--	na	2.2E-04	--	--	na	4.9E-02	--	--	na	4.9E-02
DDT ^c	0	1.1E+00	1.0E-03	na	2.2E-03	5.1E+01	5.2E-02	na	4.9E-01	2.8E-01	2.5E-04	na	2.2E-04	1.3E+01	1.3E-02	na	4.9E-02	1.3E+01	1.3E-02	na	4.9E-02
Demeton	0	--	1.0E-01	na	--	--	5.2E+00	na	--	--	2.5E-02	na	--	--	1.3E+00	na	--	--	1.3E+00	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	7.9E+00	8.9E+00	na	--	4.3E-02	4.3E-02	na	--	2.0E+00	2.2E+00	na	--	2.0E+00	2.2E+00	na	--
Dibenz(a,h)anthracene ^c	0	--	--	na	1.8E-01	--	--	na	4.0E+01	--	--	na	1.8E-02	--	--	na	4.0E+00	--	--	na	4.0E+00
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.1E+05	--	--	na	1.3E+02	--	--	na	1.1E+04	--	--	na	1.1E+04
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	7.8E+04	--	--	na	9.6E+01	--	--	na	7.8E+03	--	--	na	7.8E+03
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.5E+04	--	--	na	1.9E+01	--	--	na	1.5E+03	--	--	na	1.5E+03
3,3-Dichlorobenzidine ^c	0	--	--	na	2.8E-01	--	--	na	6.2E+01	--	--	na	2.8E-02	--	--	na	6.2E+00	--	--	na	6.2E+00
Dichlorobromomethane ^c	0	--	--	na	1.7E+02	--	--	na	3.8E+04	--	--	na	1.7E+01	--	--	na	3.8E+03	--	--	na	3.8E+03
1,2-Dichloroethane ^c	0	--	--	na	3.7E+02	--	--	na	8.2E+04	--	--	na	3.7E+01	--	--	na	8.2E+03	--	--	na	8.2E+03
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	5.8E+05	--	--	na	7.1E+02	--	--	na	5.8E+04	--	--	na	5.8E+04
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	8.1E+05	--	--	na	1.0E+03	--	--	na	8.1E+04	--	--	na	8.1E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.3E+04	--	--	na	2.9E+01	--	--	na	2.3E+03	--	--	na	2.3E+03
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
1,2-Dichloropropane ^c	0	--	--	na	1.5E+02	--	--	na	3.3E+04	--	--	na	1.5E+01	--	--	na	3.3E+03	--	--	na	3.3E+03
1,3-Dichloropropene ^c	0	--	--	na	2.1E+02	--	--	na	4.6E+04	--	--	na	2.1E+01	--	--	na	4.6E+03	--	--	na	4.6E+03
Dieldrin ^c	0	2.4E-01	5.6E-02	na	5.4E-04	1.1E+01	2.9E+00	na	1.2E-01	6.0E-02	1.4E-02	na	5.4E-05	2.8E+00	7.3E-01	na	1.2E-02	2.8E+00	7.3E-01	na	1.2E-02
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	3.6E+06	--	--	na	4.4E+03	--	--	na	3.6E+05	--	--	na	3.6E+05
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	6.9E+04	--	--	na	8.5E+01	--	--	na	6.9E+03	--	--	na	6.9E+03
Dimethyl Phthalate	0	--	--	na	1.1E+05	--	--	na	8.9E+07	--	--	na	1.1E+05	--	--	na	8.9E+06	--	--	na	8.9E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	3.6E+05	--	--	na	4.5E+02	--	--	na	3.6E+04	--	--	na	3.6E+04
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	4.3E+05	--	--	na	5.3E+02	--	--	na	4.3E+04	--	--	na	4.3E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.3E+04	--	--	na	2.8E+01	--	--	na	2.3E+03	--	--	na	2.3E+03
2,4-Dinitrotoluene ^c	0	--	--	na	3.4E+01	--	--	na	7.5E+03	--	--	na	3.4E+00	--	--	na	7.5E+02	--	--	na	7.5E+02
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	4.1E-06	--	--	na	5.1E-09	--	--	na	4.1E-07	--	--	na	4.1E-07
1,2-Diphenylhydrazine ^c	0	--	--	na	2.0E+00	--	--	na	4.4E+02	--	--	na	2.0E-01	--	--	na	4.4E+01	--	--	na	4.4E+01
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	1.0E+01	2.9E+00	na	7.2E+03	5.5E-02	1.4E-02	na	8.9E+00	2.6E+00	7.3E-01	na	7.2E+02	2.6E+00	7.3E-01	na	7.2E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	1.0E+01	2.9E+00	na	7.2E+03	5.5E-02	1.4E-02	na	8.9E+00	2.6E+00	7.3E-01	na	7.2E+02	2.6E+00	7.3E-01	na	7.2E+02
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	1.0E+01	2.9E+00	--	--	5.5E-02	1.4E-02	--	--	2.6E+00	7.3E-01	--	--	2.6E+00	7.3E-01	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	7.2E+03	--	--	na	8.9E+00	--	--	na	7.2E+02	--	--	na	7.2E+02
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	4.0E+00	1.9E+00	na	4.9E+00	2.2E-02	9.0E-03	na	6.0E-03	1.0E+00	4.7E-01	na	4.9E-01	1.0E+00	4.7E-01	na	4.9E-01
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	2.4E+01	--	--	na	3.0E-02	--	--	na	2.4E+00	--	--	na	2.4E+00

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	1.7E+05	--	--	na	2.1E+02	--	--	na	1.7E+04	--	--	na	1.7E+04
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.1E+04	--	--	na	1.4E+01	--	--	na	1.1E+03	--	--	na	1.1E+03
Fluorene	0	--	--	na	5.3E+03	--	--	na	4.3E+05	--	--	na	5.3E+02	--	--	na	4.3E+04	--	--	na	4.3E+04
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	5.2E-01	na	--	--	2.5E-03	na	--	--	1.3E-01	na	--	--	1.3E-01	na	--
Heptachlor ^C	0	5.2E-01	3.8E-03	na	7.9E-04	2.4E+01	2.0E-01	na	1.7E-01	1.3E-01	9.5E-04	na	7.9E-05	6.1E+00	5.0E-02	na	1.7E-02	6.1E+00	5.0E-02	na	1.7E-02
Heptachlor Epoxide ^C	0	5.2E-01	3.8E-03	na	3.9E-04	2.4E+01	2.0E-01	na	8.6E-02	1.3E-01	9.5E-04	na	3.9E-05	6.1E+00	5.0E-02	na	8.6E-03	6.1E+00	5.0E-02	na	8.6E-03
Hexachlorobenzene ^C	0	--	--	na	2.9E-03	--	--	na	6.4E-01	--	--	na	2.9E-04	--	--	na	6.4E-02	--	--	na	6.4E-02
Hexachlorobutadiene ^C	0	--	--	na	1.8E+02	--	--	na	4.0E+04	--	--	na	1.8E+01	--	--	na	4.0E+03	--	--	na	4.0E+03
Hexachlorocyclohexane Alpha-BHC ^C	0	--	--	na	4.9E-02	--	--	na	1.1E+01	--	--	na	4.9E-03	--	--	na	1.1E+00	--	--	na	1.1E+00
Hexachlorocyclohexane Beta-BHC ^C	0	--	--	na	1.7E-01	--	--	na	3.8E+01	--	--	na	1.7E-02	--	--	na	3.8E+00	--	--	na	3.8E+00
Hexachlorocyclohexane Gamma-BHC ^C (Lindane)	0	9.5E-01	na	na	1.8E+00	4.4E+01	--	na	4.0E+02	2.4E-01	--	na	1.8E-01	1.1E+01	--	na	4.0E+01	1.1E+01	--	na	4.0E+01
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	8.9E+04	--	--	na	1.1E+02	--	--	na	8.9E+03	--	--	na	8.9E+03
Hexachloroethane ^C	0	--	--	na	3.3E+01	--	--	na	7.3E+03	--	--	na	3.3E+00	--	--	na	7.3E+02	--	--	na	7.3E+02
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	1.0E+02	na	--	--	5.0E-01	na	--	--	2.6E+01	na	--	--	2.6E+01	na	--
Indeno (1,2,3-cd) pyrene ^C	0	--	--	na	1.8E-01	--	--	na	4.0E+01	--	--	na	1.8E-02	--	--	na	4.0E+00	--	--	na	4.0E+00
Iron	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Isophorone ^C	0	--	--	na	9.6E+03	--	--	na	2.1E+06	--	--	na	9.6E+02	--	--	na	2.1E+05	--	--	na	2.1E+05
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--
Lead	0	3.3E+02	3.8E+01	na	--	1.6E+04	2.0E+03	na	--	8.3E+01	9.4E+00	na	--	3.9E+03	4.9E+02	na	--	3.9E+03	4.9E+02	na	--
Malathion	0	--	1.0E-01	na	--	--	5.2E+00	na	--	--	2.5E-02	na	--	--	1.3E+00	na	--	--	1.3E+00	na	--
Manganese	78.9	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	6.5E+01	4.0E+01	--	--	3.5E-01	1.9E-01	--	--	1.6E+01	1.0E+01	--	--	1.6E+01	1.0E+01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.2E+05	--	--	na	1.5E+02	--	--	na	1.2E+04	--	--	na	1.2E+04
Methylene Chloride ^C	0	--	--	na	5.9E+03	--	--	na	1.3E+06	--	--	na	5.9E+02	--	--	na	1.3E+05	--	--	na	1.3E+05
Methoxychlor	0	--	3.0E-02	na	--	--	1.6E+00	na	--	--	7.5E-03	na	--	--	3.9E-01	na	--	--	3.9E-01	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--	--	0.0E+00	na	--
Nickel	0	3.6E+02	4.0E+01	na	4.6E+03	1.7E+04	2.1E+03	na	3.7E+05	9.0E+01	1.0E+01	na	4.6E+02	4.2E+03	5.3E+02	na	3.7E+04	4.2E+03	5.3E+02	na	3.7E+04
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	5.6E+04	--	--	na	6.9E+01	--	--	na	5.6E+03	--	--	na	5.6E+03
N-Nitrosodimethylamine ^C	0	--	--	na	3.0E+01	--	--	na	6.6E+03	--	--	na	3.0E+00	--	--	na	6.6E+02	--	--	na	6.6E+02
N-Nitrosodiphenylamine ^C	0	--	--	na	6.0E+01	--	--	na	1.3E+04	--	--	na	6.0E+00	--	--	na	1.3E+03	--	--	na	1.3E+03
N-Nitrosodi-n-propylamine ^C	0	--	--	na	5.1E+00	--	--	na	1.1E+03	--	--	na	5.1E-01	--	--	na	1.1E+02	--	--	na	1.1E+02
Nonylphenol	0	2.8E+01	6.6E+00	--	--	1.3E+03	3.5E+02	na	--	7.0E+00	1.7E+00	--	--	3.3E+02	8.7E+01	--	--	3.3E+02	8.7E+01	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	3.0E+00	6.8E-01	na	--	1.6E-02	3.3E-03	na	--	7.6E-01	1.7E-01	na	--	7.6E-01	1.7E-01	na	--
PCB Total ^C	0	--	1.4E-02	na	6.4E-04	--	7.3E-01	na	1.4E-01	--	3.5E-03	na	6.4E-05	--	1.8E-01	na	1.4E-02	--	1.8E-01	na	1.4E-02
Pentachlorophenol ^C	0	1.2E+01	9.6E+00	na	3.0E+01	5.8E+02	5.0E+02	na	6.6E+03	3.1E+00	2.4E+00	na	3.0E+00	1.5E+02	1.3E+02	na	6.6E+02	1.5E+02	1.3E+02	na	6.6E+02
Phenol	0	--	--	na	8.6E+05	--	--	na	7.0E+07	--	--	na	8.6E+04	--	--	na	7.0E+06	--	--	na	7.0E+06
Pyrene	0	--	--	na	4.0E+03	--	--	na	3.2E+05	--	--	na	4.0E+02	--	--	na	3.2E+04	--	--	na	3.2E+04
Radionuclides Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	4.0E+00	--	--	na	3.2E+02	--	--	na	4.0E-01	--	--	na	3.2E+01	--	--	na	3.2E+01
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	9.3E+02	2.6E+02	na	3.4E+05	5.0E+00	1.3E+00	na	4.2E+02	2.3E+02	6.6E+01	na	3.4E+04	2.3E+02	6.6E+01	na	3.4E+04
Silver	0	1.4E+01	--	na	--	6.5E+02	--	na	--	3.5E+00	--	na	--	1.6E+02	--	na	--	1.6E+02	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
1,1,2,2-Tetrachloroethane ^C	0	--	--	na	4.0E+01	--	--	na	8.8E+03	--	--	na	4.0E+00	--	--	na	8.8E+02	--	--	na	8.8E+02
Tetrachloroethylene ^C	0	--	--	na	3.3E+01	--	--	na	7.3E+03	--	--	na	3.3E+00	--	--	na	7.3E+02	--	--	na	7.3E+02
Thallium	0	--	--	na	4.7E-01	--	--	na	3.8E+01	--	--	na	4.7E-02	--	--	na	3.8E+00	--	--	na	3.8E+00
Toluene	0	--	--	na	6.0E+03	--	--	na	4.9E+05	--	--	na	6.0E+02	--	--	na	4.9E+04	--	--	na	4.9E+04
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Toxaphene ^C	0	7.3E-01	2.0E-04	na	2.8E-03	3.4E+01	1.0E-02	na	6.2E-01	1.8E-01	5.0E-05	na	2.8E-04	8.5E+00	2.6E-03	na	6.2E-02	8.5E+00	2.6E-03	na	6.2E-02
Tributyltin	0	4.6E-01	7.2E-02	na	--	2.1E+01	3.8E+00	na	--	1.2E-01	1.8E-02	na	--	5.4E+00	9.4E-01	na	--	5.4E+00	9.4E-01	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	5.7E+03	--	--	na	7.0E+00	--	--	na	5.7E+02	--	--	na	5.7E+02
1,1,2-Trichloroethane ^C	0	--	--	na	1.6E+02	--	--	na	3.5E+04	--	--	na	1.6E+01	--	--	na	3.5E+03	--	--	na	3.5E+03
Trichloroethylene ^C	0	--	--	na	3.0E+02	--	--	na	6.6E+04	--	--	na	3.0E+01	--	--	na	6.6E+03	--	--	na	6.6E+03
2,4,6-Trichlorophenol ^C	0	--	--	na	2.4E+01	--	--	na	5.3E+03	--	--	na	2.4E+00	--	--	na	5.3E+02	--	--	na	5.3E+02
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--	--	--	na	--
Vinyl Chloride ^C	0	--	--	na	2.4E+01	--	--	na	5.3E+03	--	--	na	2.4E+00	--	--	na	5.3E+02	--	--	na	5.3E+02
Zinc	7.26	2.3E+02	2.3E+02	na	2.6E+04	1.1E+04	1.2E+04	na	2.1E+06	6.3E+01	6.4E+01	na	2.6E+03	2.6E+03	3.0E+03	na	2.1E+05	2.6E+03	3.0E+03	na	2.1E+05

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)	Note: do not use QL's lower than the minimum QL's provided in agency guidance
Antimony	5.2E+03	
Arsenic	1.2E+03	
Barium	na	
Cadmium	1.7E+01	
Chromium III	1.1E+03	
Chromium VI	7.5E+01	
Copper	1.3E+02	
Iron	na	
Lead	3.0E+02	
Manganese	na	
Mercury	6.1E+00	
Nickel	3.2E+02	
Selenium	3.9E+01	
Silver	6.5E+01	
Zinc	1.1E+03	

0.035 MGD DISCHARGE FLOW - STREAM MIX PER "Mix.exe"

Discharge Flow Used for WQS-WLA Calculations (MGD) 0.035					Ammonia - Dry Season - Acute		Ammonia - Dry Season - Chronic	
<u>Stream Flows</u>		<u>Total Mix Flows</u>			90th Percentile pH (SU)	8.502	90th Percentile Temp. (deg C)	21.139
<u>Allocated to Mix (MGD)</u>		<u>Stream + Discharge (MGD)</u>			(7.204 - pH)	-1.298	90th Percentile pH (SU)	8.501
<u>Dry Season</u>	<u>Wet Season</u>	<u>Dry Season</u>	<u>Wet Season</u>		(pH - 7.204)	1.298	MIN	1.860
1Q10	1.600	3.100	1.635	3.135	Trout Present Criterion (mg N/l)	2.132	MAX	21.139
7Q10	1.800	N/A	1.835	N/A	Trout Absent Criterion (mg N/L)	3.191	(7.688 - pH)	-0.813
30Q10	2.300	5.300	2.335	5.335	Trout Present?	n	(pH - 7.688)	0.813
30Q5	2.800	N/A	2.835	N/A	Effective Criterion (mg N/L)	3.191	Early LS Present Criterion (mg N)	0.709
Harm. Mean	7.700	N/A	7.735	N/A			Early LS Absent Criterion (mg N/	0.709
Annual Avg.	0.000	N/A	0.035	N/A			Early Life Stages Present?	y
							Effective Criterion (mg N/L)	0.709
<u>Stream/Discharge Mix Values</u>					Ammonia - Wet Season - Acute		Ammonia - Wet Season - Chronic	
		<u>Dry Season</u>	<u>Wet Season</u>		90th Percentile pH (SU)	8.501	90th Percentile Temp. (deg C)	13.614
1Q10 90th% Temp. Mix (deg C)		21.156	13.625		(7.204 - pH)	-1.297	90th Percentile pH (SU)	8.501
30Q10 90th% Temp. Mix (deg C)		21.139	13.614		(pH - 7.204)	1.297	MIN	2.850
1Q10 90th% pH Mix (SU)		8.502	8.501		Trout Present Criterion (mg N/l)	2.135	MAX	13.614
30Q10 90th% pH Mix (SU)		8.501	8.501		Trout Absent Criterion (mg N/L)	3.197	(7.688 - pH)	-0.813
1Q10 10th% pH Mix (SU)		7.353	N/A		Trout Present?	n	(pH - 7.688)	0.813
7Q10 10th% pH Mix (SU)		7.358	N/A		Effective Criterion (mg N/L)	3.197	Early LS Present Criterion (mg N)	1.088
		<u>Calculated</u>	<u>Formula Inputs</u>				Early LS Absent Criterion (mg N/	1.154
1Q10 Hardness (mg/L as CaCO3)		224.0	224.0				Early Life Stages Present?	y
7Q10 Hardness (mg/L as CaCO3)		224.0	224.0				Effective Criterion (mg N/L)	1.088

0.035 MGD DISCHARGE FLOW - COMPLETE STREAM MIX

Discharge Flow Used for WQS-WLA Calculations (MGD) 0.035					Ammonia - Dry Season - Acute		Ammonia - Dry Season - Chronic	
<u>100% Stream Flows</u>		<u>Total Mix Flows</u>			90th Percentile pH (SU)	8.502	90th Percentile Temp. (deg C)	21.139
<u>Allocated to Mix (MGD)</u>		<u>Stream + Discharge (MGD)</u>			(7.204 - pH)	-1.298	90th Percentile pH (SU)	8.501
<u>Dry Season</u>	<u>Wet Season</u>	<u>Dry Season</u>	<u>Wet Season</u>		(pH - 7.204)	1.298	MIN	1.860
1Q10	1.600	3.100	1.635	3.135	Trout Present Criterion (mg N/l)	2.132	MAX	21.139
7Q10	1.800	N/A	1.835	N/A	Trout Absent Criterion (mg N/L)	3.191	(7.688 - pH)	-0.813
30Q10	2.300	5.300	2.335	5.335	Trout Present?	n	(pH - 7.688)	0.813
30Q5	2.800	N/A	2.835	N/A	Effective Criterion (mg N/L)	3.191	Early LS Present Criterion (mg N)	0.709
Harm. Mean	7.700	N/A	7.735	N/A			Early LS Absent Criterion (mg N/	0.709
Annual Avg.	0.000	N/A	0.035	N/A			Early Life Stages Present?	y
							Effective Criterion (mg N/L)	0.709
<u>Stream/Discharge Mix Values</u>					Ammonia - Wet Season - Acute		Ammonia - Wet Season - Chronic	
		<u>Dry Season</u>	<u>Wet Season</u>		90th Percentile pH (SU)	8.501	90th Percentile Temp. (deg C)	13.614
1Q10 90th% Temp. Mix (deg C)		21.156	13.625		(7.204 - pH)	-1.297	90th Percentile pH (SU)	8.501
30Q10 90th% Temp. Mix (deg C)		21.139	13.614		(pH - 7.204)	1.297	MIN	2.850
1Q10 90th% pH Mix (SU)		8.502	8.501		Trout Present Criterion (mg N/l)	2.135	MAX	13.614
30Q10 90th% pH Mix (SU)		8.501	8.501		Trout Absent Criterion (mg N/L)	3.197	(7.688 - pH)	-0.813
1Q10 10th% pH Mix (SU)		7.353	N/A		Trout Present?	n	(pH - 7.688)	0.813
7Q10 10th% pH Mix (SU)		7.358	N/A		Effective Criterion (mg N/L)	3.197	Early LS Present Criterion (mg N)	1.088
		<u>Calculated</u>	<u>Formula Inputs</u>				Early LS Absent Criterion (mg N/	1.154
1Q10 Hardness (mg/L as CaCO3) =		224.000	224.000				Early Life Stages Present?	y
7Q10 Hardness (mg/L as CaCO3) =		224.000	224.000				Effective Criterion (mg N/L)	1.088

6/17/2013 2:47:27 PM

Facility = Blacksburg Country Club WWTP

Chemical = ammonia (mg/L) Jun. - Dec.

Chronic averaging period = 30

WLAa = 150

WLAc = 47

Q.L. = 0.2

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 9

Variance = 29.16

C.V. = 0.6

97th percentile daily values = 21.9007

97th percentile 4 day average = 14.9741

97th percentile 30 day average = 10.8544

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

6/17/2013 2:48:26 PM

Facility = Blacksburg Country Club WWTP

Chemical = ammonia (mg/L) Jan. - May

Chronic averaging period = 30

WLAa = 290

WLAc = 170

Q.L. = 0.2

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 9

Variance = 29.16

C.V. = 0.6

97th percentile daily values = 21.9007

97th percentile 4 day average = 14.9741

97th percentile 30 day average = 10.8544

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

3/5/2013 11:13:01 AM

Facility = Blacksburg Country Club WWTP

Chemical = TRC (ug/L)

Chronic averaging period = 4

WLAa = 890

WLAc = 580

Q.L. = 100

samples/mo. = 30

samples/wk. = 8

Summary of Statistics:

observations = 1

Expected Value = 1000

Variance = 360000

C.V. = 0.6

97th percentile daily values = 2433.41

97th percentile 4 day average = 1663.79

97th percentile 30 day average = 1206.05

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 848.293374750874

Average Weekly limit = 506.011312376056

Average Monthly Limit = 420.432149695269

The data are:

1000

Attachment G

Regional Water Quality Model Output (Version 4.0)

REGIONAL MODELING SYSTEM VERSION 4.0
**Model Input File for the Discharge
to ROANOKE RIVER, NORTH FORK.**

File Information

File Name: C:\Users\pmp94864\Documents\Working files\BECKY\PERMITS\VPDES\B
Date Modified: June 17, 2013

Water Quality Standards Information

Stream Name: ROANOKE RIVER, NORTH FORK
River Basin: Roanoke River Basin
Section: 7
Class: IV - Mountainous Zones Waters
Special Standards: pH 6.5 S.U. - 9.5 S.U.

Background Flow Information

Gauge Used: #2054120
Gauge Drainage Area: 46.36 Sq.Mi.
Gauge 7Q10 Flow: 1.7 MGD
Headwater Drainage Area: 0 Sq.Mi.
Headwater 7Q10 Flow: 1.7 MGD (Net; includes Withdrawals/Discharges)
Withdrawal/Discharges: 0 MGD
Incremental Flow in Segments: 3.666954E-02 MGD/Sq.Mi.

Background Water Quality

Background Temperature: 21.1 Degrees C
Background cBOD5: 2 mg/l
Background TKN: 0 mg/l
Background D.O.: 7.608028 mg/l

Model Segmentation

Number of Segments: 1
Model Start Elevation: 1475 ft above MSL
Model End Elevation: 1451 ft above MSL

REGIONAL MODELING SYSTEM VERSION 4.0
Model Input File for the Discharge
to ROANOKE RIVER, NORTH FORK.

Segment Information for Segment 1

Definition Information

Segment Definition:	A discharge enters.
Discharge Name:	BLACKSBURG COUNTRY CLUB WWTP
VPDES Permit No.:	VA0027481

Discharger Flow Information

Flow:	0.035 MGD
cBOD5:	30 mg/l
TKN:	20 mg/l
D.O.:	0 mg/l
Temperature:	23.7 Degrees C

Geographic Information

Segment Length:	2.2 miles
Upstream Drainage Area:	0 Sq.Mi.
Downstream Drainage Area:	0 Sq.Mi.
Upstream Elevation:	1475 Ft.
Downstream Elevation:	1451 Ft.

Hydraulic Information

Segment Width:	12.001 Ft.
Segment Depth:	0.546 Ft.
Segment Velocity:	0.41 Ft./Sec.
Segment Flow:	1.735 MGD
Incremental Flow:	0 MGD (Applied at end of segment.)

Channel Information

Cross Section:	Wide Shallow Arc
Character:	Mostly Straight
Pool and Riffle:	No
Bottom Type:	Small Rock
Sludge:	None
Plants:	Few
Algae:	None

modout.txt

"Model Run For C:\Users\pmp94864\Documents\Working
files\BECKY\PERMITS\VPDES\Blacksburg Country Club WWTP\Reissuance 2013\Data\BCC wq
model 2008 do omod 2 2013.mod On 6/17/2013 11:33:16 AM"

"Model is for ROANOKE RIVER, NORTH FORK."

"Model starts at the BLACKSBURG COUNTRY CLUB WWTP discharge."

"Background Data"

"Flow"	"cBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
1.7,	2,	0,	7.608,	21.1

"Discharge/Tributary Input Data for Segment 1"

"Flow"	"cBOD5"	"TKN"	"DO"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
.035,	30,	20,	0,	23.7

"Hydraulic Information for Segment 1"

"Length"	"width"	"Depth"	"velocity"
"(mi)"	"(ft)"	"(ft)"	"(ft/sec)"
2.2,	12.001,	.546,	.41

"Initial Mix Values for Segment 1"

"Flow"	"DO"	"cBOD"	"nBOD"	"DOSat"	"Temp"
"(mgd)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"(mg/l)"	"deg C"
1.735,	7.455,	6.412,	1.485,	8.449,	21.15245

"Rate Constants for Segment 1. - (All units Per Day)"

"k1"	"k1@T"	"k2"	"k2@T"	"kn"	"kn@T"	"BD"	"BD@T"
.5,	.527,	6.545,	6.727,	.25,	.273,	0,	0

"Output for Segment 1"

"Segment starts at BLACKSBURG COUNTRY CLUB WWTP"

"Total"	"Segm."	"DO"	"cBOD"	"nBOD"
"Dist."	"Dist."	"(mg/l)"	"(mg/l)"	"(mg/l)"
"(mi)"	"(mi)"	"(mg/l)"	"(mg/l)"	"(mg/l)"

0,	0,	7.455,	6.412,	1.485
.1,	.1,	7.496,	6.362,	1.479
.2,	.2,	7.534,	6.312,	1.473
.3,	.3,	7.569,	6.263,	1.467
.4,	.4,	7.601,	6.214,	1.461
.5,	.5,	7.604,	6.165,	1.455
.6,	.6,	7.604,	6.117,	1.449
.7,	.7,	7.604,	6.069,	1.443
.8,	.8,	7.604,	6.021,	1.437
.9,	.9,	7.604,	5.974,	1.431
1,	1,	7.604,	5.927,	1.425
1.1,	1.1,	7.604,	5.881,	1.419
1.2,	1.2,	7.604,	5.835,	1.413
1.3,	1.3,	7.604,	5.789,	1.407
1.4,	1.4,	7.604,	5.744,	1.401
1.5,	1.5,	7.604,	5.699,	1.395
1.6,	1.6,	7.604,	5.654,	1.389
1.7,	1.7,	7.604,	5.61,	1.383
1.8,	1.8,	7.604,	5.566,	1.377
1.9,	1.9,	7.604,	5.522,	1.371
2,	2,	7.604,	5.479,	1.365
2.1,	2.1,	7.604,	5.436,	1.359
2.2,	2.2,	7.604,	5.393,	1.353

"END OF FILE"

Attachment H

Financial Assurance Information



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Blue Ridge Regional Office

www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

Lynchburg Office
7705 Timberlake Road
Lynchburg, Virginia 24502
(434) 582-5120
Fax (434) 582-5125

David K. Paylor
Director

Robert J. Weld
Regional Director

Roanoke Office
3019 Peters Creek Road
Roanoke, Virginia 24019
(540) 562-6700
Fax (540) 562-6725

Mr. Daina T. Reynolds II
B&J Enterprises, L.C.
3807 Brandon Avenue
Roanoke, VA 24018

RE: VPDES Permit Application for Blacksburg Country Club WWTP (VA0027481); Conditional Approval of Closure Plan/ Financial Assurance Demonstration; Received March 12, 2013; Additional Information Received March 25, 2013, May 21, 2013, May 31, 2013, and June 7, 2013

Dear Mr. Reynolds:

Revisions to the financial assurance information for the Blacksburg Country Club WWTP were received on May 31, 2013 and June 7, 2013. The VPDES permit application forms appear to be technically and administratively complete. The closure plan and financial assurance mechanism have also been reviewed.

Under the closure contract implementation, the contract operator is listed as Daina Reynolds doing business as Reynolds Farms. The cost estimate is for a total of \$50,000 and is subject to annual cost adjustments for inflation. The next cost estimate adjustment is due by November 7, 2013 and the required amount for the current plan on file will be \$54,391. There are potential pending changes in management and operations at this facility that may affect the sufficiency of the financial assurance demonstration plan. Since the schedule or nature of these changes cannot be assessed, an interim closure plan is acknowledged as a necessary step. This closure plan and financial assurance mechanism is conditionally approved. The permittee is required to submit an approvable updated closure plan, cost estimate, and signed agreement within one year from the effective date of the permit or within six month of a transfer of ownership, whichever comes first.

Other reviews of the application will be required by state and federal agencies to ensure that public health and the environment will be protected. These reviews may require that you submit additional information. The next steps involve drafting the permit. Once the draft permit is prepared and the appropriate reviews are performed, the staff will transmit the draft permit and supporting documentation to you for review.

Blacksburg Country Club WWTP (VA0027481)
Reissuance Application/ Financial Assurance Demonstration
Page 2 of 2

If you have any questions about our procedures or the status of your draft permit, please contact Becky L. France at (540) 562-6793.

Sincerely,

Robert J. Weld
Regional Director

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY *Blue Ridge Regional Office*

3019 Peters Creek Road

Roanoke, VA 24019

SUBJECT: Financial Assurance Requirements Review
Reissuance of VPDES Permit No. VA0027481
Blacksburg Country Club WWTP

TO: Permit File

FROM: Becky L. France, Water Permit Writer *BJF*

DATE: June 18, 2013

Closure Plan

As noted in the VPDES permit application, B&J Enterprises is the operator/owner of the VPDES permit for Blacksburg Country Club WWTP. The facility has a design capacity of 0.035 MGD, so financial assurance requirements are applicable. As part of the permit reissuance application, Blacksburg Country Club WWTP submitted a closure plan to meet requirements of 9 VAC 25-650-10 et seq. in the event that the current owner ceases operation of the facility. In accordance with 9 VAC 25-650-60C.4, the owner chose the option for contract operation of the facility for two years after the initial implementation of the closure plan. The closure plan identifies Daina T. Reynolds II dba Reynolds Farms as the plan implementer. Revisions to the financial assurance demonstration were received on May 31, 2013 and June 7, 2013. Revisions included signature of the closure agreement by the surviving son and information about the closure funding.

Cost Estimate

The closure plan contains a cost estimate of \$50,000. In accordance with 9 VAC 25-650-120, the permittee has funded this requirement through a certificate of deposit and closure bond for \$53,482 with Grundy National Bank. The cost estimate is adjusted annually for inflation. The next cost estimate adjustment is due by November 7, 2013 and the required amount will be \$54,391. As per correspondence from the DEQ Office of Financial Responsibility Program and Data Management, the permittee is currently in compliance with the cost estimate on file for this facility.

Third Party Implementation

In accordance with 9 VAC 25-650-60D, the closure plan shall designate and authorize a third party who is responsible for implementing the closure plan. The permittee has contracted with Daina Reynolds dba Reynolds Farms as the plan implementer. A written agreement, dated March 15, 2013, was signed by Mr. William H. Lester who is the managing partner for B&J Enterprises, LC and Mr. Daina T. Reynolds II who operates as Reynolds Farms.

B&J Enterprises is owned by Mr. W.H. Lester and the estate for the former Mr. E.S. Lester. Mr. E. S. Lester and his two daughters and Mr. W.H. Lester owned CSW Associates as a parallel company to B&J Enterprises. Prior to Mr. E.H. Lester's death, B&J Enterprises paid a management fee to CSW Associates to manage the treatment facility. It appears as per the VPDES permit application B&J Enterprises has assumed this

responsibility as operator as well as owner. Currently, B&J Enterprises has hired Mr. Daina Reynolds II as the certified Class IV wastewater operator and superintendent for the Blacksburg Country Club WWTP. Mr. Reynolds II receives a salary from B&J Enterprises but is not an owner or part owner of B&J Enterprises. Under the VPDES permit, B&J Enterprises is required to have at least one Class IV licensed operator. If Mr. Reynolds ceased employment with B&J Enterprises, the permittee would be required to contract/hire another Class IV operator. The legal operating entity receiving the funds from the sewer fees is B&J Enterprises. The financial resources of B&J Enterprises and Reynolds Farms do not appear to be connected legally as ownership. So, in the event that B&J Enterprises became insolvent, the third party would remain.

Conclusions

Given the complex nature of the management companies involved in the ownership and operation of the Blacksburg Country Club WWTP, there may be a potential for changes in managing partner relationships that could affect the sufficiency of the closure agreement. The entity, Mr. Daina Reynolds II dba Reynolds Farms, represents a one person contractor and is a bit limiting as a resource for closure implementation. There is an inflow and infiltration study and structural remediation work for the treatment works planned for this summer. There have been discussions regarding modification of the closure plan estimate. Additionally, a letter was submitted with the VPDES permit application explaining a proposal of a company to buy the assets of Blacksburg Country Club WWTP. This proposed transfer is being considered by the State Corporation Commission. Given these uncertainties, it is recommended that the financial assurance closure plan, cost estimate, and financial assurance plan agreement be conditionally approved. An updated approvable financial assurance plan, cost estimate, an agreement should be required within one year of permit reissuance or within six months of transfer of ownership, whichever occurs first.

B & J Enterprises, L.C.

3807 Brandon Avenue, S.W.

Suite #245

Roanoke, Virginia 24018

Phone (540) 989-3653

Extended Aeration Closure Plan

B&J Enterprises, L.C.

Blacksburg Country Club Estates WWTP

Blacksburg, VA

Extended Aeration History and General Data

The Blacksburg Country Club Estates WWTP Extended Aeration System with post chlorinator and de-chlorination currently requires a Closure Plan for the Application of its VPDES Permit. There is no intention to actually close the facility by the current owners of the facility in the foreseeable future. The facility is located in the Ellett Valley of Montgomery County. It currently serves 155 residential customers and one commercial customer. The outfall is near the North Fork of the Roanoke River. The system was completed in 1999, and is currently permitted under VPDES Permit No. VA0027481. The discharge limit is not to exceed 0.035 MGD. If this plan is implemented, it will be when B&J Enterprises, L.C. becomes financially insolvent or unavailable.

Radical Closure and removal of the plant is not an option due to the large number of permanent residences in the vicinity coupled with soil conditions that preclude individual septic drain fields. This situation gives rise to three options for the system upon failure of the current utility company. These options are sale of the utility company, transfer of the utility company to the Montgomery County PSA, or connection to another system.

Sale of the Utility Company

Upon failure of the utility company and implementation of the Plan, the utility company would be offered for sale to private individuals or a corporation. Sale of the utility would be upon the approval of the State Corporation Commission. Permits, deeds, easements and accounting would be transferred in a timely manner which would not exceed the two year permit closure time frame. Sale would be by sales contract completed by Reynolds Farms/Daina Reynolds, contract closure plan implementer.

Transfer of the Utility Company

Upon failure of the company and implementation of the plan, the utility company may be transferred to the Montgomery County PSA. In this scenario, the utility company would rely upon the charter of the MCPSA which states that they are chartered to build and acquire WWTPs in Montgomery County. The Plan implementer would immediately apply for acquisition by the PSA. Permits, deeds, easements, and accounting would be transferred in a timely manner which would not exceed the two year closure time frame.

Connection to Adjacent System

Upon failure of the company and implementation of the Plan, the company may be connected to an adjacent system. In this scenario, the Number One Pumping Station would be used to pump pretreated waste into the Town of Blacksburg system and the utility would become a customer of the town, the town recently passed an ordinance allowing them to extend to customers outside their town limits.

This connection could be easily accomplished by the addition of one pumping station in the Nellies Cave Road area. Upon implementation of this plan the plan implementer would immediately apply for service and Extension of Mains which process would not exceed the two year closure plan time frame. The town of Blacksburg is adjacent to the Blacksburg Country Club Estates.

Implementation of the Plan

The plan will be implemented at the direction of the DEQ. The contract implementer of the plan will be Daina T. Reynolds II dba Reynolds Farms. Upon notification by the DEQ and release of the Closure Bond, Mr. Reynolds will execute the plan option or options which he deems most advantageous, accomplishable and prudent. The closure plan contract is attached as part of this plan. Upon notification by the DEQ and release of the Closure Bond, Mr. Reynolds would receive the utility company and immediately secure the books, records, revenues and accounts of the utility company. Mr. Reynolds will insure the ongoing operations of the utility company as the operator, superintendent and administrator of the utility company operations, and receiver of the business and assets. Mr. Reynolds is very knowledgeable and competent due to his intimate involvement with the utility company since it has been a regulated entity. Mr. Reynolds will continue with the management and operation of the utility company until relieved of his responsibilities by the completion of the closure plan. The utility company has every confidence in Mr. Reynolds' abilities as manager, operator, superintendent, plan implementer and receiver.

Bonding

Since the utility company will continue to collect revenues after the failure or insolvency of B&J Enterprises, LC, or operations are ceased by B&J Enterprises, LC, a competitive management fee will be paid to the receiver commensurate with the services rendered. A Closure Bond is currently established and funded through the surcharge approved by the State Corporation Commission. The amount of the Closure Bond will be \$50,000.00, fifty thousand dollars. The Closure Bond and related funds will be released to the contract plan implementer immediately upon implementation of the plan.

Cost Estimate

The cost to implement the closure plan will be \$50,000.00, fifty thousand dollars.

France, Becky (DEQ)

From: Bennett, Josiah (DEQ)
Sent: Friday, June 07, 2013 11:46 AM
To: Daina Reynolds
Cc: France, Becky (DEQ); Parker IV, Clifton L.; Castillo, Timothy E.
Subject: RE: Closure Bond Financial Assurance Mechanism

Daina,
You're in compliance at the moment. An adjustment is due by 11/7/2013, and the required amount will be \$54,391.
Thanks,
Josiah

*Josiah Bennett
Virginia Department of Environmental Quality
Office of Financial Responsibility Programs & Data Management
629 E. Main St., 5th floor
Richmond, VA 23219
(804) 698-4205 (p)
(800) 592-5482 (toll-free)
(804) 698-4234 (fax)*

Visit DEQ's petroleum program on the web at

<http://www.deq.virginia.gov/Programs/LandProtectionRevitalization/FinancialAssurance.aspx>

From: Daina Reynolds [<mailto:gordietz@msn.com>]
Sent: Friday, June 07, 2013 11:09 AM
To: Bennett, Josiah (DEQ)
Cc: France, Becky (DEQ); Parker IV, Clifton L.; Castillo, Timothy E.
Subject: Closure Bond Financial Assurance Mechanism

Dear Josiah:

B&J Enterprises, LC is currently working through the VPDES Discharge Permit reissuance process. Can you please review and respond on the status of the Financial Assurance Mechanism. Especially, whether there are any amounts due or outstanding so we may address them immediately. I think that we have a Cost Index increase due in November or December. Please calculate the amount and include it in your response.

Respectfully Yours,
Daina T. Reynolds II
B&J Enterprises, LC

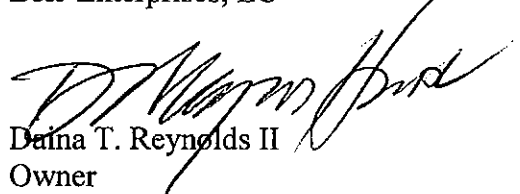
March 15, 2013

Contract for Closure Plan Implementation

B&J Enterprises, LC and Daina T. Reynolds II, dba Reynolds Farms, do hereby and herein contract the following:

Daina T. Reynolds II dba Reynolds Farms will for the Closure Bond amount of \$50,000.00 with the Cost Index Increases and all related monies, and a competitive management fee will implement the Closure Plan approved by the Department of Environmental Quality. Mr Reynolds will perform or secure the duties of operator in charge, superintendent, and implementer of the Closure Plan, administrator and receiver during the two year term of the Closure Plan.


William H. Lester
Managing Partner
B&J Enterprises, LC


Daina T. Reynolds II
Owner
Reynolds Farms


Vonda L. Ward

Notary

My commission expires: 10/31/16



July 12, 2012

DEQ Closure Bond
Financial Assurance Mechanism
Certificate of Deposit Calculation

Amount required to fully fund Closure Bond and return B&J to compliance as of 7/12/2012.....	\$53,482.00
Amount currently held at Grundy National Bank to the benefit of DEQ.....	\$32,505.00
Amount of certificate of deposit to be purchased 7/13/2012.....	\$20,977.00

ASSIGNMENT OF CERTIFICATE OF DEPOSIT ACCOUNT

City, Roanoke, VA

July 13, 2012, 2012

FOR VALUE RECEIVED, the undersigned assigns all right, title and interest to the Virginia Department of Environmental Quality, Commonwealth of Virginia and its successors and assigns the Virginia Department of Environmental Quality the principal amount of the instrument, including all monies deposited now or in the future to that instrument, indicated below:

 If checked here, this assignment includes all interest ~~now and~~ hereafter accrued.
Certificate of Deposit Account No.

This assignment is given as security to the Virginia Department of Environmental Quality in the amount of twenty thousand nine hundred seventy seven dollars (\$20,977).

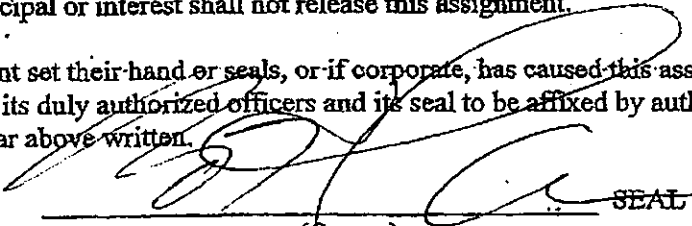
Continuing Assignment. This assignment shall continue to remain in effect for all subsequent terms of the automatically renewable certificate of deposit.

Assignment of Document. The undersigned also assigns any certificate or other document evidencing ownership to the Virginia Department of Environmental Quality.

Additional Security. This assignment shall secure the payment of any financial assurance obligations of the (name of owner/operator) to the Virginia Department of Environmental Quality for closure activities at the (facility name and permit number) located (physical address).

Application of Funds. The undersigned agrees that all or any part of the funds of the indicated account or instrument may be applied to the payment of any and all financial assurance obligations of (name of owner/operator) to the Virginia Department of Environmental Quality for closure activities at the (facility name and address). The undersigned authorizes the Virginia Department of Environmental Quality to withdraw any principal amount on deposit in the indicated account or instrument including any interest, if indicated, and to apply it in the Virginia Department of Environmental Quality's discretion to fund closure at the (facility name) or in the event of (name of owner or operator)'s failure to comply with the regulation entitled Closure Plans and Demonstration of Financial Capability, 9VAC25-650-10 et seq. The undersigned agrees that the Virginia Department of Environmental Quality may withdraw any principal and/or interest from the indicated account or instrument without demand or notice. The undersigned agrees to assume any and all loss of penalty due to federal regulations concerning the early withdrawal of funds. Any partial withdrawal of principal or interest shall not release this assignment.

The party or parties to this Assignment set their hand or seals, or if corporate, has caused this assignment to be signed in its corporate name by its duly authorized officers and its seal to be affixed by authority of its Board of Directors the day and year above written.



(Owner)
B & J Enterprises, L.C.
By: William H. Lester, Managing Member

(Print name)

SEAL

(Owner)

SEAL

(Print name)

Attachment I

Public Notice

PUBLIC NOTICE -- Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of treated wastewater into a water body in Montgomery County, Virginia

PUBLIC COMMENT PERIOD: July 22, 2013 through August 20, 2013

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Wastewater issued by DEQ, under the authority of the State Water Control Board

APPLICANT NAME, ADDRESS, AND PERMIT NUMBER: B&J Enterprises, L.C., 3807 Brandon Avenue, S.W., Suite 245, Roanoke, VA 24018, VA0027481

FACILITY NAME AND LOCATION: Blacksburg Country Club WWTP, 1064 Clubhouse Road, Blacksburg, VA 24060

PROJECT DESCRIPTION: B&J Enterprises, L.C. has applied for a reissuance of a permit for the private wastewater treatment plant. The applicant proposes to release treated sewage wastewater at a rate of 35,000 gallons per day from the current facility into a water body. Sludge from the treatment process will be periodically transported to the WVWA WPCP for further treatment. The facility proposes to release the treated sewage into the North Fork of the Roanoke River in Montgomery County in the Roanoke River/Bradshaw Creek Watershed (VAW-L02R). A watershed is the land area drained by a river and its incoming streams. The permit will limit the following pollutants to amounts that protect water quality: organic matter, solids, toxic pollutants.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by e-mail, fax, or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for a public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requestor, including how and extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if a public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS, AND ADDITIONAL INFORMATION:

Becky L. France; ADDRESS: Virginia Department of Environmental Quality, Blue Ridge Regional Office, 3019 Peters Creek Road, Roanoke, VA 24019-2738; (540) 562-6700; E-MAIL ADDRESS: becky.france@deq.virginia.gov; FAX: (540) 562-6725. The public may review the draft permit and application at the DEQ office named above by appointment or may request copies of the documents from the contact person listed above.

Attachment J
Consent Order



COMMONWEALTH of VIRGINIA

Douglas W. Domenech
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY Blue Ridge Regional Office

www.deq.virginia.gov

David K. Paylor
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Roanoke, Virginia 24019
(540) 562-6700
Fax (540) 562-6725

STATE WATER CONTROL BOARD ENFORCEMENT ACTION - ORDER BY CONSENT ISSUED TO B&J ENTERPRISES L.C. FOR THE BLACKSBURG COUNTRY CLUB STP VPDES Permit No. VA0027481

SECTION A: Purpose

This is a Consent Order issued under the authority of Va. Code § 62.1-44.15, between the State Water Control Board and B&J Enterprises L.C., regarding the Blacksburg Country Club STP, for the purpose of superseding the September 28, 2007 Consent Order between the State Water Control Board and B&J Enterprises L.C. and resolving certain violations of the State Water Control Law, the VPDES Permit Regulation, the applicable VPDES Permit, and the 2007 Consent Order.

SECTION B: Definitions

Unless the context clearly indicates otherwise, the following words and terms have the meaning assigned to them below:

1. "B&J" means B&J Enterprises L.C., a limited liability company authorized to do business in Virginia and its members, affiliates, partners, subsidiaries, and parents. B&J is a "person" within the meaning of Va. Code § 62.1-44.3.
2. "Board" means the State Water Control Board, a permanent citizens' board of the Commonwealth of Virginia, as described in Va. Code §§ 10.1-1184 and 62.1-44.7.
3. "BRRO" means the Blue Ridge Regional Office of DEQ, located in Roanoke, Virginia.

4. "Department" or "DEQ" means the Department of Environmental Quality, an agency of the Commonwealth of Virginia, as described in Va. Code § 10.1-1183.
5. "Director" means the Director of the Department of Environmental Quality, as described in Va. Code § 10.1-1185.
6. "DMR" means Discharge Monitoring Report.
7. "Facility" or "Plant" means the Blacksburg Country Club STP and collection system located at the Blacksburg Country Club Estates subdivision in Montgomery County, Virginia, which treats and discharges treated sewage and other municipal wastes, and owned by B&J Enterprises L.C.
8. "Notice of Violation" or "NOV" means a type of Notice of Alleged Violation under Va. Code § 62.1-44.15.
9. "O&M" means operations and maintenance.
10. "Order" means this document, also known as a "Consent Order" or "Order by Consent," a type of Special Order under the State Water Control Law.
11. "Permit" means VPDES Permit No. VA0027481, which was issued under the State Water Control Law and the Regulation to B&J Enterprises L.C. on September 12, 2008 and which expires on September 11, 2013.
12. "Pollutant" means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 USC § 2011 *et seq.*)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water... 9 VAC 25-31-10.
13. "Pollution" means such alteration of the physical, chemical, or biological properties of any state waters as will or is likely to create a nuisance or render such waters (a) harmful or detrimental or injurious to the public health, safety, or welfare or to the health of animals, fish, or aquatic life; (b) unsuitable with reasonable treatment for use as present or possible future sources of public water supply; or (c) unsuitable for recreational, commercial, industrial, agricultural, or other reasonable uses, provided that (i) an alteration of the physical, chemical, or biological property of state waters or a discharge or deposit of sewage, industrial wastes or other wastes to state waters by any owner which by itself is not sufficient to cause pollution but which, in combination with such alteration of or discharge or deposit to state waters by other owners, is sufficient to cause pollution; (ii) the discharge of untreated sewage by any owner into state waters; and (iii) contributing to the contravention of standards of water quality duly established by the Board, are "pollution." Va. Code § 62.1-44.3.

14. "Regulation" means the VPDES Permit Regulation, 9 VAC 25-31-10 *et seq.*
15. "Sewer System" means the wastewater collection system, including pump stations, owned by B&J Enterprises L.C., and used to convey wastewater to the Facility.
16. "State Water Control Law" means Chapter 3.1 (§ 62.1-44.2 *et seq.*) of Title 62.1 of the Va. Code.
17. "State waters" means all water, on the surface and under the ground, wholly or partially within or bordering the Commonwealth or within its jurisdiction, including wetlands. Va. Code § 62.1-44.3.
18. "Va. Code" means the Code of Virginia (1950), as amended.
19. "VAC" means the Virginia Administrative Code.
20. "VPDES" means Virginia Pollutant Discharge Elimination System.
21. "Warning Letter" or "WL" means a type of Notice of Alleged Violation under Va. Code § 62.1-44.15.

SECTION C: Findings of Fact and Conclusions of Law

1. B&J owns and operates the Plant in Montgomery County, Virginia. The Permit allows B&J to discharge treated sewage and other municipal wastes from the Plant, to the North Fork of the Roanoke River, in strict compliance with the terms and conditions of the Permit.
2. The North Fork of the Roanoke River is located in the Roanoke River Basin. The North Fork of the Roanoke River is listed in DEQ's 303(d) Report as impaired for fecal coliform.
3. In submitting its DMRs, as required by the Permit, B&J has indicated that it exceeded discharge limitations contained in Part I.A.1 of the Permit, for Biological Oxygen Demand ("BOD"), for the months of December 2007, January 2008, February 2008, and May 2009.
4. In submitting its DMRs, as required by the Permit, B&J has indicated that it exceeded discharge limitations contained in Part I.A.1 of the Permit, for Total Suspended Solids ("TSS"), for the months of December 2007, January 2008, February 2008, February 2009, and September 2009.
5. In submitting its DMRs, as required by the Permit, B&J has indicated that it exceeded discharge limitations contained in Part I.A.1 of the Permit, for E. coli, for the months of

December 2007, January 2008, February 2008, March 2008, April 2008, July 2008, August 2008, February 2009, May 2009, June 2009, July 2009, August 2009, September 2009, October 2009, November 2009, January 2010, March 2010, April 2010, May 2010, June 2010, July 2010, and August 2010.

6. In submitting its DMRs, as required by the Permit, B&J has indicated that it exceeded discharge limitations contained in Part I.A.1 of the Permit, for total residual chlorine, for the months of December 2008 and March 2009.
7. In submitting its DMRs, as required by the Permit, B&J failed to report accurate values for the discharge limitations contained in Part I.A.1 of the Permit, for pH, for the months of February 2008 and September 2009.
8. Department staff have noted that the complete Infiltration and Inflow study of the collection system, required by the Special Order by Consent dated September 28, 2007 to be submitted by B&J on or before December 31, 2007, was not received by the Department until March 31, 2008.
9. Department staff have noted that the 1st year Progress Report for compliance with Ammonia effluent limitations, required by Part I.A.2 of the Permit to be submitted by B&J on or before September 12, 2009, was not received by the Department by the deadline. B&J subsequently submitted the required report.
10. Department staff have noted that a completed application for reissuance of the Permit, required by Part I.A.2 of the Permit to be submitted by B&J on or before March 15, 2008, was not received by the Department until August 1, 2008.
11. In submitting its DMRs, as required by the Permit, B&J has indicated that it reached or exceeded 95% of the design capacity authorized by the Permit, for the monthly average flow influent each month for a three-month period and subsequently did not submit a plan of action to ensure compliance with the terms of the permit. B&J asserts that the September 28, 2007 I&I Plan of Action addresses the 95% flow issue.
12. In submitting its DMRs, as required by the Permit, B&J failed to report accurate values for the discharge limitations contained in Part I.A.1 of the Permit, for E. coli for the months of May 2010 and June 2010. B&J also failed to include a letter of explanation for the August 2010 E. coli violation with its August 2010 DMR.
13. B&J notified the Department that it discharged untreated wastewater from the Plant on February 19, 2008, April 28, 2008, June 18, 2009, November 11, 2009, December 9, 2009, December 13, 2009, and March 11, 2010.
14. The Department issued the following WLs and NOVs to B&J for the above referenced violations: NOV W2008-02-W-001 on February 5, 2008; NOV No. W2008-03-W-002 on March 11, 2008; NOV No. W2008-04-W-0001 on April 7, 2008; WL No. W2008-06-W-1001 on June 3, 2008; WL No. W2008-07-W-1004 on July 2, 2008; NOV No.

W2008-10-W-0001 on October 7, 2008; NOV No. W2009-04-W-0004 on April 9, 2009; NOV No. W2009-05-W-0003 on May 7, 2009; WL No. W2009-07-W-1002 on July 9, 2009; NOV No. W2009-09-W-0002 on September 4, 2009; NOV W2009-10-W-0001 on October 14, 2009; NOV No. W2009-11-W-0002 on November 10, 2009; NOV No. W2009-12-W-0001 to B&J on December 7, 2009; NOV No. W2010-01-W-0002 on January 6, 2010; NOV No. W2010-02-W-0003 on February 10, 2010; NOV No. W2010-03-W-0003 on March 10, 2010; NOV No. W2010-04-W-002 on April 6, 2010; NOV No. W2010-05-W-0003 to B&J on May 6, 2010; NOV No. W2010-06-W-0003 to B&J on June 10, 2010; NOV No. W2010-07-W-0002 to B&J on July 8, 2010; NOV No. W2010-08-W-002 to B&J on August 4, 2010; NOV No. W2010-09-W-0001 on September 10, 2010 and NOV No. W2010-10-W-0001 on October 6, 2010.

15. B&J responded to the Warning Letters and Notice of Violation by submitting explanations and performing corrective actions to address the violations.
16. B&J's operating logs indicate that it discharged treated wastewater from the Plant every day from December 1, 2007 through July 31, 2010.
17. Va. Code § 62.1-44.5 states that: "[E]xcept in compliance with a certificate issued by the Board, it shall be unlawful for any person to discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances."
18. The Regulation, at 9 VAC 25-31-50, also states that except in compliance with a VPDES permit, or another permit issued by the Board, it is unlawful to discharge into state waters sewage, industrial wastes or other wastes.
19. Va. Code § 62.1-44.15(5a) states that a VPDES permit is a "certificate" under the statute.
20. Va Code § 62.1-44.31 states that "It shall be unlawful for any owner to fail to comply with any special order adopted by the Board, which has become final under the provisions of this chapter".
21. The Department has issued no permits or certificates to B&J other than VPDES Permit No. VA0027481.
22. The North Fork of the Roanoke River is a surface water located wholly within the Commonwealth and is a "state water" under State Water Control Law.
23. Based on the documentation submitted by B&J, the Board concludes that B&J has violated the Permit, Va. Code § 62.1-44.5, and 9 VAC 25-31-50, by discharging treated sewage and municipal wastes from the Plant while concurrently failing to comply with the conditions of the Permit, as described in paragraphs C3 through C7, above.
24. Based on the results of Department staff file reviews and documentation submitted by B&J, the Board concludes that B&J has violated the Special Order by Consent dated September 28, 2007, as described in paragraph C8, above.

25. Based on the results of Department staff file reviews and documentation submitted by B&J, the Board concludes that B&J has violated the Permit, as described in paragraphs C9 through C12, above.
26. Based on the documentation submitted by B&J, the Board concludes that B&J has violated Va. Code § 62.1-44.5, and 9 VAC 25-31-50, by discharging untreated wastewater into the North Fork of the Roanoke River, as described in paragraph C13.
27. In order for B&J to return to compliance, DEQ staff and representatives of B&J have agreed to the Schedule of Compliance, which is incorporated as Appendix A of this Order.

SECTION D: Agreement and Order

Accordingly, by virtue of the authority granted it in § 62.1-44.15, the Board orders B&J, and B&J agrees to:

1. Perform the actions described in Appendices A and B of this Order; and
2. Pay a civil charge of \$11,583 in settlement of the violations cited in this Order. The civil charge shall be paid in accordance with the following schedule:

Due Date	Amount
Within 30 days of the effective date of the Order	\$2,895.75 or balance
Within 120 days of the effective date of the Order	\$2,895.75 or balance
Within 210 days of the effective date of the Order	\$2,895.75 or balance
Within 300 days of the effective date of the Order	\$2,895.75 or balance

3. If the Department fails to receive a civil charge payment pursuant to the schedule described above, the payment shall be deemed late. If any payment is late, the Department shall have the right to demand in writing full payment of the entire remaining balance under this order by B&J, and the entire remaining balance of the civil charge shall be immediately due and owing. B&J shall pay the entire remaining balance within 15 days of receipt of the demand letter from the Department. Any acceptance by the Department of a late payment or of a payment of less than the entire remaining balance shall not serve as a waiver of the Department's right to accelerate payment of the balance under this Order.

Payment shall be made by check, certified check, money order or cashier's check payable to the "Treasurer of Virginia," and delivered to:

Receipts Control
Department of Environmental Quality
Post Office Box 1104
Richmond, Virginia 23218

B&J shall include its Federal Employer Identification Number (FEIN) 54-1786562 with the civil charge payment and shall indicate that the payment is being made in accordance with the requirements of this Order for deposit into the Virginia Environmental Emergency Response Fund (VEERF).

SECTION E: Administrative Provisions

1. The Board may modify, rewrite, or amend this Order with the consent of B&J for good cause shown by B&J, or on its own motion pursuant to the Administrative Process Act, Va. Code § 2.2-4000 *et seq.*, after notice and opportunity to be heard.
2. This Order addresses and resolves only those violations specifically identified in Section C of this Order. This Order shall not preclude the Board or the Director from taking any action authorized by law, including but not limited to: (1) taking any action authorized by law regarding any additional, subsequent, or subsequently discovered violations; (2) seeking subsequent remediation of the Facility; or (3) taking subsequent action to enforce the Order.
3. For purposes of this Order and subsequent actions with respect to this Order only, B&J admits the jurisdictional allegations, findings of fact, and conclusions of law contained herein.
4. B&J consents to venue in the Circuit Court of the City of Richmond for any civil action taken to enforce the terms of this Order.
5. B&J declares it has received fair and due process under the Administrative Process Act and the State Water Control Law and it waives the right to any hearing or other administrative proceeding authorized or required by law or regulation, and to any judicial review of any issue of fact or law contained herein. Nothing herein shall be construed as a waiver of the right to any administrative proceeding for, or to judicial review of, any action taken by the Board to modify, rewrite, amend, or enforce this Order.
6. Failure by B&J to comply with any of the terms of this Order shall constitute a violation of an order of the Board. Nothing herein shall waive the initiation of appropriate enforcement actions or the issuance of additional orders as appropriate by the Board or

the Director as a result of such violations. Nothing herein shall affect appropriate enforcement actions by any other federal, state, or local regulatory authority.

7. If any provision of this Order is found to be unenforceable for any reason, the remainder of the Order shall remain in full force and effect.
8. B&J shall be responsible for failure to comply with any of the terms and conditions of this Order unless compliance is made impossible by earthquake, flood, other acts of God, war, strike, or such other occurrence. B&J shall show that such circumstances were beyond its control and not due to a lack of good faith or diligence on its part. B&J shall notify the DEQ Regional Director verbally within 24 hours and in writing within three business days when circumstances are anticipated to occur, are occurring, or have occurred that may delay compliance or cause noncompliance with any requirement of the Order. Such notice shall set forth:
 - a. the reasons for the delay or noncompliance;
 - b. the projected duration of any such delay or noncompliance;
 - c. the measures taken and to be taken to prevent or minimize such delay or noncompliance; and
 - d. the timetable by which such measures will be implemented and the date full compliance will be achieved.

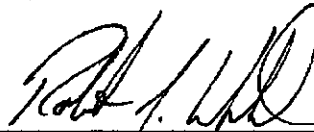
Failure to so notify the Regional Director verbally within 24 hours and in writing within three business days, of learning of any condition above, which the B&J intends to assert will result in the impossibility of compliance, shall constitute a waiver of any claim to inability to comply with a requirement of this Order.

9. This Order is binding on the parties hereto, their successors in interest, designees and assigns, jointly and severally.
10. This Order shall become effective upon execution by both the Director or his designee and B&J. Nevertheless, B&J agrees to be bound by any compliance date which precedes the effective date of this Order.
11. This Order shall continue in effect until:
 - a. B&J petitions the Director or his designee to terminate the Order after it has completed all of the requirements of the Order and the Director or his designee approves the termination of the Order; or
 - b. the Director or Board terminates the Order in his or its sole discretion upon 30 days' written notice to B&J.

Termination of this Order, or any obligation imposed in this Order, shall not operate to relieve B&J from its obligation to comply with any statute, regulation, permit condition, other order, certificate, certification, standard, or requirement otherwise applicable.

12. Any plans, reports, schedules or specifications attached hereto or submitted by B&J and approved by the Department pursuant to this Order are incorporated into this Order. Any non-compliance with such approved documents shall be considered a violation of this Order.
13. The undersigned representative of B&J certifies that he or she is a responsible official authorized to enter into the terms and conditions of this Order and to execute and legally bind B&J to this document. Any documents to be submitted pursuant to this Order shall also be submitted by a responsible official of B&J.
14. This Order constitutes the entire agreement and understanding of the parties concerning settlement of the violations identified in Section C of this Order, and there are no representations, warranties, covenants, terms or conditions agreed upon between the parties other than those expressed in this Order. In addition the parties agree that, by its issuance, this Order cancels and supersedes the 2007 Consent Order referenced above.
15. By its signature below, B&J Enterprises L.C. voluntarily agrees to the issuance of this Order.

And it is so ORDERED this 10th day of December, 2010.



Robert J. Weld, Regional Director
Department of Environmental Quality

B&J Enterprises L.C. voluntarily agrees to the issuance of this Order.

Date: 10/8/10 By: Edsel H. Lester
Edsel H. Lester, Managing Partner
B&J Enterprises L.C.

Commonwealth of Virginia

City/County of Salem

The foregoing document was signed and acknowledged before me this 8th day of October, 2010, by Edsel H. Lester who is Managing Partner of B&J Enterprises L.C., on behalf of the corporation.

Vonda L. Ward
Notary Public

243264
Registration No.

My commission expires: 10-31-12

Notary seal:



APPENDIX A SCHEDULE OF COMPLIANCE

B&J shall:

- 1) Develop a financial plan to escrow the necessary funds to complete work at the Plant's Pump Station #1. This financial plan shall be submitted to the Department for review and approval no later than February 1, 2011. After the Department approves the financial plan it shall be incorporated by reference and become an enforceable part of the Order.
- 2) Develop a schedule for completion of the work at Pump Station #1. The work includes raising the wet well elevation for the Pump Station above the 100-year flood elevation. This system improvement was identified by B&J in its March 31, 2008 system inflow and infiltration (I&I) study as necessary to eliminate I&I at the Plant. This schedule shall be submitted to the Department for review and approval no later than February 1, 2011. After the Department approves the schedule it shall be incorporated by reference and become an enforceable part of the Order.
- 3) Confirm the flow meter calibration for the Plant no later than December 31, 2010. B&J will provide the Department documentation that this item has been completed no later than January 10, 2011.
- 4) Develop a plan of action to address continuing E. coli effluent limit violations at the Plant as well as to improve the overall performance of the Plant to ensure consistent compliance with all Permit requirements. The plan of action should contain items to be addressed as well as a schedule to complete the plan. This plan of action shall be submitted to the Department for review and approval no later than February 1, 2011. After the Department approves the plan and schedule they shall be incorporated by reference and become enforceable parts of the Order.
- 5) Achieve compliance with the E. coli effluent limits no later than June 30, 2011.
- 6) Provide additional training to its employed or contracted wastewater works operator by requiring attendance at the following training courses as described in the DEQ Operator Training and Assistance Training Schedule. B&J shall register and ensure attendance by its employed or contracted wastewater works operator at the first available course from the following list:
 - Virginia Tech Short School for Wastewater Operators
 - Basic Lab Skills
 - Activated Sludge Process Control: Parts 1 & 2
 - VPDES Permit Reporting
 - Math for Wastewater Operators
 - Sampling and Testing for Small Plants

B&J must provide documentation that its employed or contracted wastewater works operator has successfully completed all the listed courses no later than June 30, 2012.

7) Ensure regular attendance of its employed or contracted wastewater works operator at the Plant. At minimum, the wastewater works operator shall attend to the operations and maintenance of the Plant 5 days per 7 day week.

8) Submit quarterly progress reports to the Department detailing the status of the financial plan, the schedule of work for Pump Station #1, the plan of action for overall plant performance, and the status of training for its employees. The first quarterly progress report shall be due no later than April 10, 2011 and all future reports shall be submitted no later than the 10th day of July, October, January, and April. B&J shall continue to submit quarterly progress reports until such time that this Order is terminated.

9) Unless otherwise specified in this Order, B&J shall submit all requirements of Appendix A. of this Order to:

Jerry Ford, Jr.
VA DEQ - Blue Ridge Regional Office
3019 Peters Creek Road
Roanoke, VA 24019
Phone: (540) 562-6817
e-mail: Jerry.Ford@deq.virginia.gov

APPENDIX B **INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

From the effective date of this Order until completion of the corrective action requirements contained in Appendix A, but in no event later than June 30, 2011, B&J shall monitor and limit the discharge from Outfall No. 001 of the Blacksburg Country Club STP in accordance with VPDES Permit Number VA0027481, except as specified below. These interim limits shall retroactively apply, if applicable, as of the first day of the month in which this Order becomes effective.

These requirements shall be construed in light of the Regulation.

Parameter Description	Parameter Limits					Monitoring Requirements	
	Quantity Average	Quantity Maximum	Concentration Minimum	Concentration Average	Concentration Maximum	Sample Frequency	Sample Type
120 eColi				NL		2/M	Grab

Attachment K

EPA Checksheet

**State "FY2003 Transmittal Checklist" to Assist in Targeting
Municipal and Industrial Individual NPDES Draft Permits for Review**

Part I. State Draft Permit Submission Checklist

In accordance with the MOA established between the Commonwealth of Virginia and the United States Environmental Protection Agency, Region III, the Commonwealth submits the following draft National Pollutant Discharge Elimination System (NPDES) permit for Agency review and concurrence.

Facility Name: Blacksburg Country Club WWTP

NPDES Permit Number: VA0027481

Permit Writer Name: Becky L. France

Date: 3/5/2013

Major ☐Minor ☒Industrial ☐Municipal ☒

I.A. Draft Permit Package Submittal Includes:

	Yes	No	N/A
1. Permit Application?	X		
2. Complete Draft Permit (for renewal or first time permit – entire permit, including boilerplate information)?	X		
3. Copy of Public Notice?	X		
4. Complete Fact Sheet?	X		
5. A Priority Pollutant Screening to determine parameters of concern?			X
6. A Reasonable Potential analysis showing calculated WQBELs?	X		
7. Dissolved Oxygen calculations?	X		
8. Whole Effluent Toxicity Test summary and analysis?			X
9. Permit Rating Sheet for new or modified industrial facilities?			X

I.B. Permit/Facility Characteristics

	Yes	No	N/A
1. Is this a new, or currently unpermitted facility?		X	
2. Are all permissible outfalls (including combined sewer overflow points, non-process water and storm water) from the facility properly identified and authorized in the permit?	X		
3. Does the fact sheet or permit contain a description of the wastewater treatment process?	X		

I.B. Permit/Facility Characteristics – cont. (FY2003)		Yes	No	N/A
4. ⁴	Does the review of PCS/DMR data for at least the last 3 years indicate significant non-compliance with the existing permit? under consent order	X		
5.	Has there been any change in streamflow characteristics since the last permit was developed?	X		
6.	Does the permit allow the discharge of new or increased loadings of any pollutants?		X	
7.	Does the fact sheet or permit provide a description of the receiving water body(s) to which the facility discharges, including information on low/critical flow conditions and designated/existing uses?	X		
8.	Does the facility discharge to a 303(d) listed water?		X	
a.	Has a TMDL been developed and approved by EPA for the impaired water?			X
b.	Does the record indicate that the TMDL development is on the State priority list and will most likely be developed within the life of the permit?			X
c.	Does the facility discharge a pollutant of concern identified in the TMDL or 303(d) listed water?	X		
9.	Have any limits been removed, or are any limits less stringent, than those in the current permit (backsliding allowed due to new information)	X		
10.	Does the permit authorize discharges of storm water?			X
11.	Has the facility substantially enlarged or altered its operation or substantially increased its flow or production?		X	
12.	Are there any production-based, technology-based effluent limits in the permit?		X	
13.	Do any water quality-based effluent limit calculations differ from the State's standard policies or procedures?		X	
14.	Are any WQBELs based on an interpretation of narrative criteria?		X	
15.	Does the permit incorporate any variances or other exceptions to the State's standards or regulations?		X	
16.	Does the permit contain a compliance schedule for any limit or condition?		X	
17.	Is there a potential impact to endangered/threatened species or their habitat by the facility's discharge(s)?		X	
18.	Have impacts from the discharge(s) at downstream potable water supplies been evaluated?			X
19.	Is there any indication that there is significant public interest in the permit action proposed for this facility?		X	
20.	Have previous permit, application, and fact sheet been examined?	X		

Part II. NPDES Draft Permit Checklist (FY2003)

Region III NPDES Permit Quality Checklist – for POTWs (To be completed and included in the record only for POTWs)

II.A. Permit Cover Page/Administration

	Yes	No	N/A
1. Does the fact sheet or permit describe the physical location of the facility, including latitude and longitude (not necessarily on permit cover page)?	X		
2. Does the permit contain specific authorization-to-discharge information (from where to where, by whom)?	X		

II.B. Effluent Limits – General Elements

	Yes	No	N/A
1. Does the fact sheet describe the basis of final limits in the permit (e.g., that a comparison of technology and water quality-based limits was performed, and the most stringent limit selected)?	X		
2. Does the fact sheet discuss whether "antibacksliding" provisions were met for any limits that are less stringent than those in the previous NPDES permit?	X		

II.C. Technology-Based Effluent Limits (POTWs)

	Yes	No	N/A
1. Does the permit contain numeric limits for <u>ALL</u> of the following: BOD (or alternative, e.g., CBOD, COD, TOC), TSS, and pH?	X		
2. Does the permit require at least 85% removal for BOD (or BOD alternative) and TSS (or 65% for equivalent to secondary) consistent with 40 CFR Part 133?	X		
a. If no, does the record indicate that application of WQBELs, or some other means, results in more stringent requirements than 85% removal or that an exception consistent with 40 CFR 133.103 has been approved?			X
3. Are technology-based permit limits expressed in the appropriate units of measure (e.g., concentration, mass, SU)?	X		
4. Are permit limits for BOD and TSS expressed in terms of both long term (e.g., average monthly) and short term (e.g., average weekly) limits?	X		
5. Are any concentration limitations in the permit less stringent than the secondary treatment requirements (30 mg/l BOD5 and TSS for a 30-day average and 45 mg/l BOD5 and TSS for a 7-day average)?		X	
a. If yes, does the record provide a justification (e.g., waste stabilization pond, trickling filter, etc.) for the alternate limitations?			X

II.D. Water Quality-Based Effluent Limits

	Yes	No	N/A
1. Does the permit include appropriate limitations consistent with 40 CFR 122.44(d) covering State narrative and numeric criteria for water quality?	X		
2. Does the fact sheet indicate that any WQBELs were derived from a completed and EPA approved TMDL? (E. coli)	X		

II.D. Water Quality-Based Effluent Limits – cont. (FY2003)	Yes	No	N/A
3. Does the fact sheet provide effluent characteristics for each outfall?	X		
4. Does the fact sheet document that a “reasonable potential” evaluation was performed?	X		
a. If yes, does the fact sheet indicate that the “reasonable potential” evaluation was performed in accordance with the State’s approved procedures?	X		
b. Does the fact sheet describe the basis for allowing or disallowing in-stream dilution or a mixing zone?	X		
c. Does the fact sheet present WLA calculation procedures for all pollutants that were found to have “reasonable potential”?	X		
d. Does the fact sheet indicate that the “reasonable potential” and WLA calculations accounted for contributions from upstream sources (i.e., do calculations include ambient/background concentrations)?			X
e. Does the permit contain numeric effluent limits for all pollutants for which “reasonable potential” was determined?	X		
5. Are all final WQBELs in the permit consistent with the justification and/or documentation provided in the fact sheet?	X		
6. For all final WQBELs, are BOTH long-term AND short-term effluent limits established?	X		
7. Are WQBELs expressed in the permit using appropriate units of measure (e.g., mass, concentration)?	X		
8. Does the record indicate that an “antidegradation” review was performed in accordance with the State’s approved antidegradation policy?	X		

II.E. Monitoring and Reporting Requirements	Yes	No	N/A
1. Does the permit require at least annual monitoring for all limited parameters and other monitoring as required by State and Federal regulations?	X		
a. If no, does the fact sheet indicate that the facility applied for and was granted a monitoring waiver, AND, does the permit specifically incorporate this waiver?			X
2. Does the permit identify the physical location where monitoring is to be performed for each outfall?	X		
3. Does the permit require at least annual influent monitoring for BOD (or BOD alternative) and TSS to assess compliance with applicable percent removal requirements?		X	
4. Does the permit require testing for Whole Effluent Toxicity?		X	

II.F. Special Conditions	Yes	No	N/A
1. Does the permit include appropriate biosolids use/disposal requirements?			X
2. Does the permit include appropriate storm water program requirements?			X

II.F. Special Conditions – cont. (FY2003)	Yes	No	N/A
3. If the permit contains compliance schedule(s), are they consistent with statutory and regulatory deadlines and requirements?			X
4. Are other special conditions (e.g., ambient sampling, mixing studies, TIE/TRE, BMPs, special studies) consistent with CWA and NPDES regulations?	X		
5. Does the permit allow/authorize discharge of sanitary sewage from points other than the POTW outfall(s) or CSO outfalls [i.e., Sanitary Sewer Overflows (SSOs) or treatment plant bypasses]?		X	
6. Does the permit authorize discharges from Combined Sewer Overflows (CSOs)?			X
a. Does the permit require implementation of the "Nine Minimum Controls"?			X
b. Does the permit require development and implementation of a "Long Term Control Plan"?			X
c. Does the permit require monitoring and reporting for CSO events?			X
7. Does the permit include appropriate/ Pretreatment Program requirements?			X

II.G. Standard Conditions		Yes	No	N/A
1. Does the permit contain all 40 CFR 122.41 standard conditions or the State equivalent (or more stringent) conditions?		X		
List of Standard Conditions – 40 CFR 122.41				
Duty to comply	Property rights	Reporting Requirements		
Duty to reapply	Duty to provide information	Planned change		
Need to halt or reduce activity	Inspections and entry	Anticipated noncompliance		
not a defense	Monitoring and records	Transfers		
Duty to mitigate	Signatory requirement	Monitoring reports		
Proper O & M	Bypass	Compliance schedules		
Permit actions	Upset	24-Hour reporting		
		Other non-compliance		
2. Does the permit contain the additional standard condition (or the State equivalent or more stringent conditions) for POTWs regarding notification of new introduction of pollutants and new industrial users [40 CFR 122.42(b)]?		X		

Part II. NPDES Draft Permit Checklist (FY2003)

Region III NPDES Permit Quality Review Checklist – For Non-Municipals

(To be completed and included in the record for all non-POTWs)

-----NOT APPLICABLE-----

Part III. Signature Page (FY2003)

Based on a review of the data and other information submitted by the permit applicant, and the draft permit and other administrative records generated by the Department/Division and/or made available to the Department/Division, the information provided on this checklist is accurate and complete, to the best of my knowledge.

Name	<u>Becky L. France</u>
Title	<u>Water Permit Writer</u>
Signature	<u><i>Becky L. France</i></u>
Date	<u>3/5/13</u>